

**EVALUATION OF AN ASTHMA TRAINING AND EDUCATOR
COURSE, ASTHMATREC®:
PARTICIPANTS' PERSPECTIVES**

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By

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Abstract

The Asthma Training and Educator Course®, *AsthmaTrec*®, was developed by the Manitoba and Saskatchewan Lung Associations in response to an increasing need for knowledgeable and consistent education for the management and treatment of asthma. The course, first offered in 1999, was designed to provide health care professionals with the knowledge, skills and resources necessary to facilitate effective asthma patient education.

This descriptive study evaluated the effectiveness of *AsthmaTrec*®, from the perspective of successful graduates. Survey questionnaires were mailed in June, 2001 to 182 participants who graduated in the first fourteen months of course delivery. Study participants were surveyed regarding: the importance of course content and skills, regardless of discipline; the strengths and limitations of the course content; what differences encountered in delivering asthma education since *AsthmaTrec*®; and their future continuing education needs for asthma education. The response rate to the survey was 68.0%. Respondents (n=117), included nurses, pharmacists, registered respiratory therapists and physical therapists.

Descriptive statistical analysis was performed on the data collected and expressed as mean scores, frequency distribution, percent, standard deviation and chi-square. Comments from respondents were categorized from the questionnaire using content analysis. The findings from the majority of the respondents indicated that *AsthmaTrec*® was successful in meeting the needs of program participants and provided respondents with the necessary knowledge and skills in their practice for asthma education.

Perceived course content strengths included the practical information in the course and the techniques that related directly to self-management of asthma. Perceived program weaknesses included components of the course relating to the role of the educator. National CAE's perceived themselves more as a resource person by the public and other health care professionals. Continuing education perceived as most valuable included written materials, use of the Internet and conferences attendance. Further research is indicated to explore the collaborative efforts of the multidisciplinary team in relation to asthma education.

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TABLE OF CONTENTS

Page

PERMISSION TO USE	i
ABSTRACT	ii
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
1. CHAPTER 1 INTRODUCTION	1
1.1 Asthma Management in Canada	2
1.2 Objectives of the Evaluation Study	3
1.3 Background	3
1.4 Significance of Study	5
1.5 Summary	6
1.6 Research Questions	7
1.7 Definition of Key Terms	8
2. CHAPTER 2 LITERATURE REVIEW	10
2.1 Adult Education and Evaluation	10
2.2 Evaluation of Educator Training Programs	13
2.3 Development of Asthma Education in Canada	15
2.3.1. AsthmaTrec® Description	17
2.4 Summary	22
3. CHAPTER 3 METHODOLOGY	23
3.1 Methodological Approach	23
3.1.1. Stufflebeam CIPP Model	23
3.1.2. Responsive Approach	25
3.2 Research Design	27
3.3 Survey Questionnaire Development	28
3.4 Selection of the Participants	30
3.5 Data Presentation	31
3.6 Consent and Ethics	32

4.	CHAPTER 4 FINDINGS	33
4.1	Response Rate to Questionnaire	33
4.2	Characteristics of Respondents	34
4.3	Work-Related Asthma Educator Factors	40
4.4	Findings Related to the Research Questions	46
4.4.1	Research question 1	46
4.4.2	Research question 2	48
4.4.3	Research question 3	53
4.4.4	Research question 4	57
4.4.5	Research question 5	62
5.	CHAPTER 5 DISCUSSION	66
5.1	Overview	66
5.2	Discussion of Findings	70
5.2.1	Research questions 1 and 2	70
5.2.2	Research question 3	72
5.2.3	Research question 4	73
5.2.4	Research question 5	75
5.3	Limitations of the Study	76
5.4	Implications for Asthma Educators	77
5.5	Recommendations for Further Study	79
5.6	Conclusions	81
	REFERENCES	83
	APPENDIX A: Workshop Agenda	87
	APPENDIX B: AsthmaTrec® Learning Objectives	89
	APPENDIX C: Questionnaire	99
	APPENDIX D: Covering Letter	116
	APPENDIX E: Permission to Contact Graduates	118
	APPENDIX F: Letters of Correspondence	120
	APPENDIX G: Ethics Approval	124

LIST OF TABLES

	Page
TABLE 4.1 Characteristics of AsthmaTrec® respondents	35
TABLE 4.2 Characteristics of respondents with CAE or without CAE certification	39
TABLE 4.3 Work-related asthma education factors reported by respondents	42
TABLE 4.4 Asthma education initiatives reported by respondents	45
TABLE 4.5 AsthmaTrec® respondents perceived importance of course content expressed as mean scores, standard deviation, median and range ..	47
TABLE 4.6 Perceived importance of skills from AsthmaTrec® expressed as mean scores, standard deviation, median and range ..	50
TABLE 4.7 Respondents perceived importance regarding AsthmaTrec®, in respect to meeting asthma educators' needs at work	56
TABLE 4.8 Work in asthma education/week	58
TABLE 4.9 Respondents recognition as a resource person by CAE/no CAE in working with a health care team, the general public, employer and the health district	60
TABLE 4.10 Respondents' challenges for updating asthma education	65

LIST OF FIGURES

Page

FIGURE 4.1	Proportion (%) respondents reasons for attending <i>AsthmaTrec</i> ®	37
FIGURE 4.2	Respondents reasons (%) for choosing not to write the asthma educator certification examination	41
FIGURE 4.3	Proportion (%) of respondents by discipline who used more than 50% of <i>AsthmaTrec</i> ® course content in their practice	49
FIGURE 4.4	Proportion (%) of respondents by discipline who used more than 50% of <i>AsthmaTrec</i> ® skills in their practice	52
FIGURE 4.5	Proportion (%) of respondents perceived barriers to asthma education	61
FIGURE 4.6	Proportion (%) of respondents using selected methods of updating knowledge in asthma education.	64

Chapter 1

Introduction

As new programs for health educators are developed, the need for systematic program evaluation to assess their effectiveness and usefulness is important to maintain quality of the program. Kowalski (1988) notes that evaluation of a program is essential to determine successes and failures of a program as well as for program improvement and accountability. Program evaluation can also examine the different perspectives of the participants to determine whether knowledge and skills have been gained by them during the learning process. Forest (1976) stated that:

All people related to adult education programs will place varying values on the programs' outcomes, depending on their experiences with it, and whether the program met their own concerns and expectations. A program will have multiple values and the concept of evaluation must be broad enough to encompass them.
(p.167)

This evaluation study was based on a request by and with the support of the Saskatchewan and Manitoba Lung Associations and the AsthmaTrec® Development Committee for an evaluation of aspects of the AsthmaTrec® program.

1.1. Asthma Management in Canada

Asthma is one of the most prevalent chronic conditions in Canada affecting approximately 6% of adults and 12% of children (Statistics Canada, 1998). Over 2.2 million Canadians have been diagnosed with asthma by a physician (Statistics Canada 1998). Many patients with asthma have a mild form of the disease, yet all patients have the potential to experience life-threatening conditions. In Canada, asthma is a leading cause of admissions to hospital and approximately 20 children and 500 adults die each year from asthma. It has been estimated that more than 80% of these deaths could be prevented with improved management through asthma education (GlaxoSmithKline Inc., 2000). Education has been seen as the primary method of reducing burdens in health care (Cockcroft, 1989).

Boulet, Becker, Berube, Beveridge & Ernst (1999) define asthma as being “characterized by paroxysmal or persistent symptoms such as dyspnea, chest tightness, wheezing, sputum production and cough, associated with variable airflow limitation and a variable degree of hyperresponsiveness of airways to endogenous or exogenous stimuli” (p. 2). Furthermore, they identified asthma as “a chronic but variable disease, whereby patients and their families must be prepared to make lifestyle changes and adhere to drug therapy for long periods, even at times when symptoms are not evident” (p. 15). In order to facilitate improved management of asthma and decrease the morbidity associated with asthma, consistency and relevancy of asthma information based on the national consensus for the management of asthma is required with the combined efforts of individuals with asthma, their families, health care providers, institutions, governments, and the general public (The National Asthma Control Task Force, 2000, Ernst, Fitzgerald & Spier, 1996).

1.2. Objectives of the Evaluation Study

The objectives of this evaluation study were developed based on the researcher's experience with asthma, personal interest, awareness of the need for program evaluation and confirmation from the Saskatchewan and Manitoba Lung Associations regarding the relevancy of the study. The objectives as outlined were:

1. To determine the effectiveness of the *AsthmaTrec*® workshop content on the knowledge and skills of successful graduates,
2. To determine the impact of the *AsthmaTrec*® workshop on the practices of asthma educators,
3. To examine the perspectives of successful graduates regarding the strengths and limitations of the program,
4. To determine what differences existed between nationally certified asthma educator and asthma educator status in respect to recognition and employment opportunities,
5. To identify successful graduates' perceptions as to continuing education opportunities for further asthma education.

1.3. Background

There can be personal, social and economic impacts associated with asthma that have implications for quality of life of individuals with asthma and their families. Poor asthma control often results in time away from school, work, sports or other activities (The National Asthma Control Task Force, 2000). According to Statistics Canada (1998), 35% of individuals with asthma are restricted in their daily activities. Work absence, decreased productivity, and cost of medications and devices may

contribute to financial concerns for the asthmatic's family. In Canada, the total economic cost in 1990, including patient care, emergency services, medications and devices, research, education and productivity losses due to absence from work and caring for children with asthma, has been estimated to be between \$504 million and \$648 million dollars (Krahn, Berka, Langlois, Detsky, 1996). It is estimated that 25% of asthmatics in Canada are not achieving adequate control of their symptoms, resulting in costly use of medical services (Human Resource System Group Ltd., 1995).

Asthma education appears to be an essential component of asthma management (The National Asthma Control Task Force, 2000, Hargreave, 1990). The Canadian Asthma Consensus Report recommends that education, drug therapy, and environmental issues be targeted in a systematic approach to the management of asthma (Ernst, Fitzgerald & Spiers, 1996). Cockcroft (1989) notes that appropriate asthma management is most affected by firstly, education of the persons with asthma and their families/caregivers; and secondly, by control of the individual's environment and appropriate use of medications to control and prevent asthma episodes from occurring.

The ultimate goal of asthma education is control of asthma by improved knowledge, changed behavior, and improved asthma self-management (Boulet, Becker, Berube, Beveridge & Ernst, 1999). In order to accomplish this task, preparation of health educators with up-to-date knowledge and skills in asthma management is essential for asthma education.

The Asthma Training and Educator Course, *AsthmaTrec*® was developed in 1997 by the Manitoba and Saskatchewan Lung Associations. *AsthmaTrec*® in response to an increasing need for knowledgeable educators in the management and

treatment of asthma. The first course was conducted in 1999 for health care professionals including nurses, physical therapists, pharmacists, respiratory therapists, physicians, health educators and others. *AsthmaTrec*® was designed to help health care professionals develop the knowledge and skills required to educate patients and their families in asthma self-management. The *AsthmaTrec*® Development Committee was responsible for the development of the content, the facilitators' materials, the teaching tools and the participants' materials of *AsthmaTrec*®, as well as the piloting of the modules, the evaluation of the pilots and final revisions to the Course, as necessary. This Committee was comprised of physician asthma specialists, clinicians, health educators and educational consultants. Course facilitators identified interest in examining information on how participants have been able to use the knowledge and skills attained through *AsthmaTrec*®. This current evaluation of *AsthmaTrec*® focuses on the examination of the perspective of one stakeholder group, *AsthmaTrec*® graduates.

1.4. Significance of Study

As there has been minimal documentation in the literature regarding evaluation of asthma educator programs, evaluation of *AsthmaTrec*® would provide information that could lead to improved program development. There was interest from the Saskatchewan and Manitoba Lung Associations for the evaluation to be conducted to facilitate improvement of *AsthmaTrec*®. To date, there has not been a formal evaluation conducted on the impact of *AsthmaTrec*® on any of the stakeholder groups. As there are interested individuals who want to train as asthma educators to be knowledgeable and up-to-date in asthma management, the information gained

throughout this evaluation process would benefit many individuals in the management of asthma in Canada. The study investigated how graduates were able to use the knowledge and skills from the course in their current practice and how the course met their needs as an asthma educator.

This research invited participants to provide their perspectives regarding the usefulness and value of the program content, skills, and resources. These findings would be of value to the *AsthmaTrec*® Development Committee and would be used to facilitate future revisions to the course content and process of delivery. After completion of the workshop, course summative evaluations are conducted in order to evaluate the immediate responses to course delivery and content. The summative evaluation forms are used by course developers to incorporate modifications into the program on an ongoing basis. This evaluation study was conducted to provide the *AsthmaTrec*® Development Committee and asthma educators with an enhanced insight into the connection between the course material, the value and use of the information and the skills in participants' professional practice. Wickett, (1991) notes the importance of post-event summative evaluation where participants determine the real value and practicality of the information beyond the immediate use in the classroom setting. Valuable knowledge could be gained as to how to best communicate and engage learners in the content and skills for upcoming *AsthmaTrec*® programs.

1.5. Summary

From the limited documentation in the literature regarding asthma educator programs and the interest of the *AsthmaTrec*® Development Committee, this study examined the participants' perspectives of *AsthmaTrec*® and, in particular, the value

and usefulness of the knowledge and skills from the course in asthma educators' practice.

1.6. Research Questions

The research questions were developed by the researcher in consultation with the *AsthmaTrec*® Development Committee through a series of semi-structured meetings and a telephone conference. Based on these discussions and from the literature review on asthma education, the main research question for the study is: Do the knowledge and skills provided in *AsthmaTrec*® meet the needs of the practitioner for asthma education? From this main interest, the following research questions were examined:

1. Does the course content from *AsthmaTrec*® provide graduates with important knowledge for asthma education regardless of discipline?
2. Does the course content from *AsthmaTrec*® provide graduates' with useful skills for asthma education regardless of discipline?
3. What is the perspective of graduates regarding the strengths and limitations of the course content and value?
4. Has *AsthmaTrec*® made a difference in the practice of asthma educators in delivering asthma education initiatives?
5. What continuing education opportunities do the graduates view as being valuable for continued asthma education?

1.7. Definition of Key Terms

Throughout this thesis, various terms are used which have specific meaning in relation to evaluation research methodology. For the purposes of clarification in the research study, the definitions of these key terms are as follows as defined by *AsthmaTrec*®:

AsthmaTrec® Asthma Training and Educator Course® - This Course is designed to teach health care professionals the knowledge and skills necessary to educate patients and their families in asthma self-management. The curriculum was developed based on the Canadian Asthma Consensus Conference: Summary of Recommendations (Ernst et al, 1996) and National Learning Objectives for Asthma Educators established by the Canadian Network for Asthma Care (CNAC). CNAC is the national body that certifies regional asthma educator programs and also administers the national certification exam for those who have completed a certified asthma educator program, (CNAC,1997).

Asthma Educator- An asthma educator is a health care professional and or a health educator trained in the knowledge of asthma, asthma management skills and education principles that lead to effective asthma education of patients/clients and their families. This person has successfully completed the requirements for a regional asthma educator program (CNAC,1997).

Certified Asthma Educator (CAE) - In addition to successfully completing a regional asthma educator program, a CAE has successfully written the national certification examination conducted by CNAC. This is a multiple-choice examination written at specified sites throughout Canada. This examination is an optional choice

for the majority of asthma educator positions in Canada. Upon passing this examination, Certified Asthma Educator status (CAE) is granted (CNAC, 1997).

The following definitions are operational for purposes of the study. The *AsthmaTrec*® program does not use these definitions.

Knowledge- This study variable refers to the knowledge components in *AsthmaTrec*®. A mastery of principles (Jarvis, 1999).

Multidisciplinary- Individuals of different disciplines coming together to co-ordinate patient care (Torres & Dominguez, 1998).

Self-Directed Learner- One who seeks to control and manage his or her own learning (Jarvis, 1999). Self-directed learning is a process in which individuals take the initiative in examining their learning needs, developing learning goals, finding their own resources and choosing their personal strategies and evaluating learning outcomes (Knowles, 1975).

Skills- The ability to perform correctly and effectively in action-based situations. Psycho-motor actions (Jarvis, 1999).

Chapter 2

Literature Review

The following literature review examines studies supporting the importance of the evaluation of adult education programs. The review highlights studies that support the importance of evaluating training programs followed by a perspective of how asthma education was first initiated in Canada and a description of the *AsthmaTrec*® program.

2.1. Adult Education and Evaluation

Delor's (1996) view of the International Commission on Education for the Twenty-first Century report to the United Nations Educational Scientific and Cultural Organization (UNESCO) indicated that it is essential that all people with a sense of responsibility turn their attention to both the aims and the means of education: "Education is an ongoing process of improving knowledge and skills, it is also - perhaps primarily - an exceptional means of bringing about personal development and building relationships among individuals, groups and nations" (p.14).

Torres & Dominguez (1998) discuss how it is becoming increasingly difficult for a single health care provider to meet the complex needs of patients and that the delivery of health care requires the collaborative expertise and abilities of individuals with diverse skills and knowledge working together to deliver high quality care. The

combined and maximized efforts of a multidisciplinary group of health care providers who share their expertise result in a more beneficial patient outcome than that achieved by an individual or independent health care practitioner: "Successful collaboration requires the willingness to work together with attitudes that facilitate and express a value for autonomy, competence, collegiality, interaction and communication skills and trust in the collaborative practice" (p.230). As part of this collaboration, it is essential that individuals acquire an education that facilitates the development necessary to be effective as educators in the health care environment.

Ockene & Zapka (2000) focused on the strategies and challenges required to be effective educators. Educational programs that promote the implementation of evidence-based guidelines by health care professionals will increase the quality of patient care and have an effect on patient's health behavior. Ockene & Zapka (2000) stated that:

Education must be specifically tailored to the knowledge, attitudes and skills needed for implementing the guidelines; the intensity of treatment expected of the provider; the special needs of particular patient populations; and the context and setting in which the intervention will be delivered. (p.36)

Ockene & Zapka believe that it is essential to plan an educational program with clear objectives, adequate time, materials, and facilities. Programs must have support and endorsement from employers. Crim (2000) reported that primary care physicians and asthma specialists share deficits in their knowledge base of clinical practice guidelines, clearly indicating a need for educational programs directed at physicians and asthma specialists (Crim, 2000).

The challenge to providing effective education is the need for a systematic investigation of programs to evaluate the impact of the information and to enable the educator in the work setting to reinforce the practices and skills learned. Even when the need for the educational intervention is validated, there may be challenges in the work environment that interfere with the performance and delivery of treatment. Another challenge is the demand of today's health care settings where time and resources are limited. Limited time is available at work for professionals to devote to educational opportunities or interventions (Ockene & Zapka, 2000). Collins (1994) stated that, "the needs of relevant stakeholders, and the analysis of institutionalized constraints and possibilities are not determined by the adult educator alone, but along with other participants in the learning process" (p.123).

As educators, we are often asked to evaluate programs. Stakes (1981) encourages practitioners to have knowledge of the evaluation process in adult education. Educators are encouraged to consider the role of evaluation for their program and the audiences served in the evaluation process. This process is used in continuing adult education programs as a method for better understanding the concept of evaluation.

Stakes (1981) identified first, that adults are involved in their educational endeavors; second, adults are task-oriented and come with specific needs for which they are seeking an educational solution; and third, adults bring many and varied experiences to an educational situation. Stakes highlights three adult education factors that can affect the evaluation of a program including: the duration of the program, how formal the learning experience is, and how one arrives at the

objectives of the program. The specific nature of the program and the participants can contribute to the evaluation outcomes.

2.2. Evaluation of Educator Training Programs

Wolf (1996) noted that providing programs that are effective is important in education as they are intended to meet specific learning needs in society. There is also a need for on-going evaluation of adult education and training programs, as on-going evaluations provide information that is essential for program improvement. Poell, Van Der Krogt & Warmerdam (1998) note that training provides learning experiences that are structured by professional educators. While the advantage of attending a more formal training session is that it provides an opportunity for transferring clear-cut knowledge and skills, the usefulness may be limited because of the formality of the learning environment. Combining learning from everyday work situations can be meaningful and add a practical perspective to understanding more formal aspects of a program.

There is evidence in the literature that training programs for educators are important to help standardize the information that is provided to patients/clients and their families, and to help improve the quality of asthma education (Boulet et al, 1999). Cote, Golding, Barnes & Boulet (1994) note that asthma educators teaching patients should have basic teaching skills and knowledge necessary both to convey current principles of asthma self-management, and to assess individual clients/patients needs.

Sanders (1994), as Chair of the Joint Committee on Standards for Educational Evaluation, concluded that a good evaluation study satisfies four

important criteria: utility, feasibility, propriety, and accuracy. An evaluation has utility if it is informative, timely and useful to the persons involved. Feasibility refers to the evaluation design being cost effective and appropriate for the setting of the study. An evaluation has propriety if it is conducted by considering legal and ethical issues. Accuracy refers to the evaluation study producing valid, reliable and comprehensive information for making judgments of a program's worth.

Various models of evaluation reflect many of the standards set by the Educational Evaluation Committee. Thompson (1994) critiqued the Joint Committee's work and suggested that if an evaluation study is done, it is best to work with the stakeholders to determine what the desired uses of the findings might be so that the evaluation design would best meet the need.

Burnham (1995) clearly outlined that evaluations in training programs must be grounded in objectives, contexts, and individuals. Burnham's framework is based on the work of Smith (1991) and Muller (1991), whose assumptions were that a training program must be relevant, of high quality and support the commitment of the stakeholders. Thus, based on the review of the literature, it is imperative that the evaluation be streamlined to best fit the interests of the stakeholders of the program.

Muller (1991) reinforced that the effectiveness of programs is based on problem selection, commitment, implementation, and program review. Smith (1991) referred to quality of the program by focusing on questions that relate to measured outcomes, goal achievement, evidence of participant satisfaction, and utility. Smith used questions like: Are the program outcomes identified, clear and focused on practical use? Have enough resources been allocated to make the program work

and are the resource materials used by the participants? Has the implementation and learned skills during the program been attempted and used in the workplace?

Utility refers to the evidence that the target audience uses the results in some way. For example, if the components of the program can demonstrate that the information is informative, timely, useful to the individuals, then a judgement can be made about the overall program quality. The collection of evidence for participant satisfaction would be more appropriate a month or two after the program when participants have had an opportunity to implement the skills.

Muller (1991) emphasized that commitment is essential to have a successful program. Commitment can be attained by having timely and available resources to meet the challenges of problems. The availability of personnel, the availability of time at work and an agreement with organizers that training is needed to maintain excellence of a program is essential. Cote et al. (1994) documented that:

Education provided by a trained health educator, after the establishment with the physician of a treatment plan, is efficient and can modify some of the behaviors of asthmatics. It is suggested that health educators should have a special training and an interest in asthma. (p.243S)

While many studies published to date have focused on the potential benefits of an education program, there has been little documentation of how the information prepared asthma educators to fulfill their role as asthma educators.

2.3. Development of Asthma Education in Canada

Following the First National Conference on Asthma Education in 1993, it became apparent that a national effort would be required to significantly impact

asthma management in Canada. A number of members from professional, volunteer and industry organizations worked together and formed the Canadian Network for Asthma Care (CNAC). One of the primary endeavors of CNAC was to establish national certification standards for asthma educators in Canada. In April of 1994, members for the *Asthma Educators Certification Committee* were appointed. This Committee's mandate was to develop, design and implement a certification process for asthma educators in Canada. Their purpose was to provide appropriate, consistent education to persons with asthma and their families in a cost effective manner.

The *Asthma Educators Certification Committee* (1995) reviewed the needs of asthma educators across Canada by performing a needs assessment study. The purposes of this assessment were to determine the level of interest and the need for a national certification for asthma education; to obtain the asthma educator's input as to the purpose, goals, and objectives of a potential certification program; to collect information regarding possible candidates for a certification program; and to gather information to facilitate the development of the certification process. Over 85% of the respondents felt there was a need for improved levels of skill and knowledge in asthma education (Human Resource System Group Inc., 1995). It was clear that the asthma educators felt that excellence as an asthma educator must include a high level of knowledge about the control and management of asthma, and suitable teaching skills to educate persons with asthma and their families.

In 1995, the Asthma Educators Certification Committee decided to proceed with the development of a certification process based on the results of the needs assessment, interviews with asthma educators, and a literature review. It became

evident that there were two fundamental aspects of asthma educator education that needed to be addressed:

1. Up-to-date knowledge about asthma (the “what to teach”) and;
2. A better understanding on the part of educators about educational theory and process (the “how to teach”).

In 1995, the core curriculum or national asthma learning objectives were developed and approved to support technical and teaching competencies for Canadian asthma educators. The provincial Lung Associations of Canada were instrumental in examining the feasibility of creating a national asthma educator certification program in Canada. Their mandate for asthma education has been and is to ensure that asthma educators in Canada are properly trained according to the updated asthma treatment standards, and that educators are equipped to transfer skills to patients to manage their asthma themselves. Asthma education programs have since been initiated in Canada aimed at increasing the knowledge and skills of physicians and other health care professionals and educators. In recognizing that there are a number of asthma educator courses available in Canada, this evaluation study focuses only on *AsthmaTrec*®.

2.3.1. *AsthmaTrec*® Description

In 1997, the Asthma Training and Educator Course®, *AsthmaTrec*®, was developed by the Saskatchewan and Manitoba Lung Associations, in response to the need for asthma education training for health professionals in Manitoba and Saskatchewan. One key objective of *AsthmaTrec*® is that there needs to be a

multidisciplinary approach to asthma education. The course was launched in 1999 for the benefit of health care professionals including pharmacists, nurses, physicians, physical therapists, respiratory therapists, health educators and others. In the course development, *AsthmaTrec*® incorporated the learning objectives outlined by CNAC. These learning objectives are available for course facilitators but could not be located in the pre-study module or participant's manual for *AsthmaTrec*® that is distributed to participants registered for the course.

From February 1999 to September 2000, 235 participants in Canada completed *AsthmaTrec*®. While most participants attended programs in Manitoba and Saskatchewan, other participants have attended programs held in British Columbia, Alberta, Nova Scotia, Newfoundland, New Brunswick and Prince Edward Island. All *AsthmaTrec*® programs have been delivered by trained facilitators including members from the *AsthmaTrec*® Development Committee. Registration for each workshop is limited to twelve. The goals of the program, incorporated within the advertisement pamphlet for the Course, are to give health care professionals the latest information and training in asthma care. Based directly on the Canadian Consensus Guidelines, the specific goals of the program were:

1. To give health professionals the knowledge to better educate their patients or clients,
2. To give health professionals the tools to better teach their patients how to improve their asthma self-management skills that ultimately improves the quality of care asthma patients receive, improves their quality of life, and reduces related health care costs,

3. To prepare health professionals to write a national asthma educator certification exam.

The course curriculum for *AsthmaTrec*® is arranged into three components: a Pre-Study Module, the three-day *AsthmaTrec*® Workshop, and a Post-Workshop assignment. Each component has been piloted and field-tested with a target audience.

The first component is the pre-study module. This module was developed as a distance learning, self-directed, preparatory component to the comprehensive three-day asthma educator workshop. The pre-study module incorporates information on the most current understanding of asthma and asthma management, and prepares participants with a minimum common level of knowledge about asthma. This pre-study module is based on six topics with pre- and post- assessment quizzes for each topic.

Application of the knowledge in the pre-study module begins by completing two assignments included in the self-study package. The two assignments are submitted prior to attending the three-day workshop. The first assignment is an environmental walkabout for the home, illustrating the importance of environmental control measures in the management of asthma. The second assignment is the development of a local community asthma resource list. The purpose of this assignment is to have the asthma educator become aware and familiar with the resources that are available for asthma patients and their families in their community. This list is merged with the other participants' resource lists at the workshop, the intent is for the resource list to be distributed to all participants and used as an educational tool in participants' practice. A third item to be handed in prior to the

workshop is a pre-workshop multiple-choice examination that assesses learning from the pre-module content. Completion of the two assignments and the multiple-choice examination is a requirement for attending the workshop component. Feedback and comments are provided by the *AsthmaTrec*® facilitator on all of the pre-workshop hand-in assignments during the workshop.

The second component is the three-day *AsthmaTrec*® workshop that elaborates on the information and the topics introduced in the pre-study module. The workshop provides participants with practice of the asthma self-management skills, role-playing activities, and small group discussions. The *AsthmaTrec*® workshop is divided into three modules:

Module 1: Asthma and Its Management.

Module 2: Promoting Patient Asthma Self-Management

Module 3: Long Term Self-Management

Each module is further divided into topics. The workshop agenda included in Appendix A outlines the topics covered each day. The material presented in each topic uses one or more learning activities. The learning activities include lecture, lecture-discussion, small group work, practice of asthma self-management skills, role playing, and scenarios. The learning objectives developed for the course are addressed by the facilitator / trainer for each module (Appendix B). The participants received a brief overview of the learning objectives with the agenda at the three-day workshop. Day 1 included topics such as: the definition of asthma, asthma pathophysiology, symptom triggers, inflammatory triggers and environmental factors for asthma. In addition, details on effective patient history taking, assessment of pulmonary function tests, asthma severity and control, use of delivery devices, and

asthma patient self-management were covered. Day 2 included: a continuation of asthma patient self-management, identifying patients learning styles and characteristics, theories such as social cognitive, social support and self-efficacy theories of behavior change. The elements from the theories were applied to form the basis of the eleven health education principles discussed. The workshop focused on learning activities and how the health education principles would be used to promote behavior change. The factors facilitating or hindering the motivation to change behavior, factors that enabled the motivation to change and the reinforcing factors of others that strengthen asthma management were learned. Day 3 covered topics such as: the team or multidisciplinary approach to asthma management, appropriate situations for referrals to a specialist, issues and concerns with long-term management and the ideal asthma education process. Day 3 also included explanation of the take home final assignment and the participant evaluation.

The participants must successfully complete both an oral practical exam and a written exam at the conclusion of the workshop. The oral practical exam incorporates a random selection of four practical components covered in the course material which the participant must successfully demonstrate. The written exam is a 30 question multiple-choice exam. A minimum of 70% is required to pass. Participants are given three attempts to pass the oral and the written exams. Evaluation for both components of the exams are on a pass or fail basis. If unsuccessful at the first attempt of the written final exam at the end of the workshop, the written exam is re-written at another pre-arranged time with the Course facilitator. The oral exam can be re-tried at that time or a pre-arranged time with the Course facilitator.

The last component of the program is the post-workshop assignment. This assignment is mailed to the course facilitator for evaluation within two weeks following the *AsthmaTrec*® workshop. The purpose of the assignment is to assist the asthma educator in applying what has been learned in each of the modules to a prescribed asthma education scenario. By the end of the exercise, the asthma educator would have demonstrated the process necessary to develop an asthma education program. This assignment is the final requirement and must be completed to receive the asthma educator certificate. Following successful completion of all three components, graduates of *AsthmaTrec*® are eligible to write the CAE. Writing the national asthma educator exam is optional to practice as an asthma educator. However, taking an asthma educator course is mandatory for writing the CAE.

2.4. Summary

Asthma education is important in the management of asthma for children and adults. To facilitate asthma education, the training of educators who can provide current and consistent education programs is essential. Education is an ongoing process of improving skills and knowledge of asthma educators. Programs designed to improve the skills and knowledge of educators requires consideration of adult learning principles, and the specific learning needs of the educators. The *AsthmaTrec*® program established in 1999 is a program to educate health professionals as asthma educators in asthma management and prepare them for national certification. To date, this program has not been formally evaluated for its effectiveness for asthma education in their practice.

Chapter 3

Methodology

3.1. Methodological Approach

Patton (1986) describes program evaluation as “the systematic collection of information about the activities, characteristics and outcomes of programs for use by specific people to reduce uncertainties, improve effectiveness and make decisions with regard to these programs” (p.14). A combination of two approaches to the evaluation of *AsthmaTrec*® were incorporated in this study: the process and outcome components of Shufflebeam’s CIPP Model, and a responsive approach suggested by Guba & Lincoln (1981).

3.1.1. Stufflebeam CIPP Model of Evaluation

Stufflebeam (1983) CIPP Model assists in generating potentially important questions to be addressed in the evaluation. The Model can be used in part to incorporate the responses from the participants and assist the *AsthmaTrec*® Development Committee in making decisions regarding maintaining or improving the quality of the course. The CIPP Model consists of four areas of evaluation- **context, input, process and product**.

Context evaluation refers to the setting of the program being evaluated. The setting involves the organization sponsoring the program, and the contextual view of

the organization and the program. Questions in this phase of evaluation address: What need is the program intended to meet? Who is the target population? Are the objectives appropriate given the needs of the target population? Information from this element can help decision makers focus on aspects that are not necessarily part of the program, but do affect the program and its outcomes (Burnham, 1995). This part of the CIPP Model was described in the study as part of the existing documents from the program available to the researcher.

Input evaluation refers to the judgments about the resources and strategies needed to accomplish program goals and objectives. Information collected during this stage of evaluation helps decision makers choose the best possible resources and strategies within certain constraints. Questions in this phase relate to examining whether the resources are sufficient to meet the objectives of the program and if there other ways of meeting the goals of the program.

Process evaluation deals with how well the program has been implemented. Questions at this level include: What changes could be made to the program? How well is the implementation of the program working in meeting the participants' goals? What revisions are needed? This part of the evaluation plan is crucial for two reasons: firstly, to discover if there are any concerns about the existing program, in particular, potential barriers to asthma education; secondly, to identify areas in the program requiring revisions. This component is important for the formative part of the evaluation.

Product evaluation determines the extent to which the goals of the program have been achieved, including attitudes or judgments of the program from participants. Program developers make decisions about modifying the program and

may incorporate information from participants perspectives in the course revisions.

The main essence of the CIPP Model is that it is built upon knowing ahead of time what the program objectives are and what needs the program is designed to meet (Burnham, 1995). This Model provides an evaluation framework to assist program developers facing various types of program decisions.

3.1.2. Responsive Approach

While the CIPP Model evaluates formal intents of the program, the responsive approach takes a more critical view of the participants' perspectives and the value of the program. The participants' reactions, interests, concerns, and issues the program relate more directly to the program activities than to the program intents (Guba & Lincoln, 1981).

In this study, the process and outcome components of Stufflebeam's CIPP Model were used to describe answers to the questions about the program. Incorporating the entire approach to the CIPP Model for the purposes in this evaluation is beyond the scope of this study. The responsive approach used in this study was tailored to enhance the richness of the responses from participants, and to elaborate on any concerns the participants may have identified about the program. As this Model and approach appear to address aspects of the evaluation needed for the study this approach was a reasonable and legitimate way of gathering data from a large number of respondents in answering the research questions about the *AsthmaTrec*® program.

A mail-out survey questionnaire was sent to successful graduates of the program. The survey questionnaire design was based on Total Design Method (TDM)

by Dillman (2000), which was established on a standard set of principles and procedures generally applicable to all survey designs. The basis of using TDM was to maximize quality and quantity of responses. The survey approach of using a mail-out survey questionnaire obtains adequate response rates using a single method survey (Dillman 2000).

The questionnaire developed for this study considered aspects of the TDM process in order to create trust with the respondents. Firstly, to establish trust, the evaluator emphasized the importance of the questionnaire in the letter accompanying the questionnaire (Appendix C). Items within the questionnaire were related to the participants' perspectives as asthma educators of the value and usefulness of the information from the Course content. Secondly, the exchange relationship was emphasized. In this case, the exchange relationship refers to ensuring participants that their responses and comments would be considered in the revisions of the course. Communicating to respondents that their opinion and responses to the questionnaire are valued and important. Asking respondents for their comments and suggestions; making the questionnaire relevant and interesting and thanking respondents for replying encourage participation in completing the questionnaire. Additional space was included after questions to add suggestions or comments on the questionnaire. This space provided an opportunity for the participants to express their suggestions and concerns to any of the questions on the survey (Dillman, 2000).

Worthen, Sanders & Fitzpatrick (1997), describe a cross-sectional design as one of the most appropriate descriptive approaches in evaluation of a program. This design describes trends across the groups and would identify differences among the sub-groups. In this study, determining if differences existed between the

multidisciplinary groups, as an asthma educator or as a CAE in respect to recognition changes in their employment was considered. A limitation of the cross-sectional design is the effect of any changes that may occur in the participants over time are not evident (Gall et al, 1996). The reliance on recalling information about past events when there is a time lapse between the survey and the event may be a problem. To reduce this limitation, a retrospective time frame of the past six months for the opportunities of asthma education was used. While the participants remain the same over the course of the survey, the asthma education opportunities may vary.

3.2. Research Design

The evaluation research design focused primarily on formative evaluation. Formative evaluations are conducted for the purpose of making ongoing improvements for a course in progress and are of value in improving the program and decisions about materials that are being used in the program (Gall et al, 1996). The findings from this study should lead to decisions about continued program development that includes modification or revisions to *AsthmaTrec*®. The formative evaluation would assist the *AsthmaTrec*® Development Committee to become aware of any gaps of information identified in the course and subsequent modification of information for the course could be considered. In this study, the post-event summative evaluation component would help provide information about practicality of the workshop and about ways to maintain and improve the quality of future courses (Wickett 1991). Summative evaluation collected statements and judgments about the *AsthmaTrec*® program and its value to the participants.

Posavac & Carey (1997) noted that written surveys administered to program participants are the single most common and useful method of gathering data for evaluation purposes. Merriam & Simpson (1984) support the survey as the most common technique used for gathering data in descriptive research. The survey questionnaire was useful for this study because a large number of participants from different geographical locations were contacted and the data was compiled quickly and economically. For these reasons, a mail-out questionnaire survey was chosen for this study in order to examine the graduates' perspective of *AsthmaTrec*®.

3.3. Survey Questionnaire Development

This survey questionnaire was developed by the author to examine participants' perceptions of *AsthmaTrec*®, as no comparable questionnaire format was available. The questionnaire included thirty-nine questions. Participants selected the choice that best represented their situation. The questions in the questionnaire were separated into four sections: Section I asked background information about asthma-related experiences; Section II focused on the *AsthmaTrec*® workshop. The questions in this section specifically related to the importance and usefulness of the course content areas in professional practice; Section III dealt with questions regarding resources for continuing asthma education; and Section IV gathered personal profile information.

A five-point Likert response scale was used for a portion of the questions on the questionnaire. Possible responses ranged from strongly agree (5) to strongly disagree (1). As Worthen et al (1997) supports the use of the Likert scale items to measure attitudes, this study approach was used to elicit participants' attitudes to

their learning situation. The questionnaire, primarily composed of multiple-choice items, incorporated several possible responses so that the participants would have opportunity to select the possibility that best agreed with their situation. There was also an opportunity on the questionnaire to make additional comments and to provide a more detailed account of specific experiences and personal thoughts. Any relevant information written in the space provided below each question was also considered in the analysis. Dillman (2000) asserts that by keeping both the wording and visual appearance of questions simple, participants will provide clear responses to questions.

The questionnaire was printed in booklet format. This format was preferred as it could be handled more easily and is usually completed without error (Dillman, 2000). The cover letter mailed to all participants with the questionnaire outlined the purpose of the study and included: the description of the research study; the steps taken to ensure confidentiality of the respondents; instructions for completing the questionnaire, and a contact person for access to the study results. The format of the cover letter followed the recommendations of Dillman (2000). A sample copy of the cover letter is found in Appendix D. Specific instructions on filling out the questionnaire are included by the relevant question where the information is needed rather than at the beginning of the questionnaire (Dillman 2000).

To establish content validity of the questionnaire, questions were circulated, reviewed and approved by six *AsthmaTrec*® content experts who are directly involved with the Course. Three reviewers were selected from Saskatchewan and three from Manitoba. The content experts were not part of the study and included one physician, three *AsthmaTrec*® trainers and two certified asthma educators.

3.4. Selection of the Participants

All participants selected for the evaluation were successful graduates from *AsthmaTrec*® workshops conducted from May 1999 up to and including September 2000. The 182 participants used for this study were reflective of the number of graduates prior to *AsthmaTrec*® in the fall of 2000. The participants selected from this time frame were allowed the opportunity to practice and apply learning from the Course. After September 2000, revisions to the course incorporated the comments from previous course evaluations, the facilitators' comments, and the updated 1999 current guidelines from the Canadian Asthma Consensus Report (Boulet et al, 1999). Therefore, participants who took the course after September 2000 were not included in this study.

Permission to contact the graduates from the *AsthmaTrec*® program was obtained by teleconference from members of the *AsthmaTrec*® Development Committee. The names of the graduates were provided with the permission and with the support of the Lung Associations involved. A copy of the permission letter is included in Appendix E. Some provincial Lung Associations requested that the questionnaires be sent in bulk to them for distribution to their respective graduates. Other provincial Lung Associations provided names and addresses for questionnaires to be mailed directly to the participants. The centers across Canada participating in the survey were from: Saskatoon, Regina, Winnipeg, Brandon, Calgary, Red Deer, Vancouver, St. John's, Moncton, Halifax and Sydney.

To protect confidentiality of the participants, the questionnaires were assigned code numbers and letters, these codes were used only for determining which individuals had not returned the questionnaires so that reminder cards could be sent

out to them. For Lung Associations requesting the questionnaire to be sent in bulk, all participants received a copy of the reminder letters. No names, telephone numbers or health insurance numbers were used in recording the data.

The cover letter, an attached copy of the questionnaire, and a self-addressed stamped envelope were mailed to each of the program graduates. The completed questionnaires were to be mailed back in the provided stamped envelope to the researcher, in care of the Department of Educational Foundations at the University of Saskatchewan. Participants were able to return the questionnaire by mail or by e-mail if they chose. Upon receipt of the mailed and e-mailed responses, all identifying code numbers and letters were destroyed. All responses were then allocated new code numbers to protect anonymity (Dillman, 2000). A master list of the names and addresses to assist with the mailing of the questionnaires and the mailing of the reminder card and letters, and the completed survey questionnaires were all considered confidential and were kept under lock by the researcher.

Reminder cards and follow-up letters were sent out at three, nine and twelve week intervals after the initial survey mail-out to remind respondents to complete the survey. A copy of the reminder card and corresponding letters to participants are included in Appendix F.

3.5. Data Presentation

The response rate to the questionnaires, the characteristics of respondents, and the work-related asthma education factors included information describing the *AsthmaTrec*® study group. Descriptive statistical analysis was performed on the data collected and was expressed as mean scores, median, frequency distribution, percent,

standard deviation and chi-square. The level of significance for the statistical analysis was set at .05. The data were analyzed using the Statistical Package for Statistical Sciences 10.0 (SPSS, 1999). Comments from the respondents were categorized using content analysis and provided further description and richness to the quantitative results. The findings of the study will be reported according to the research questions.

3.6. Consent and Ethics

Participation in this study was voluntary. Consent was implied by the return of the completed questionnaire. Information gathering during the evaluation process was treated with the utmost care and confidentiality. Approval was granted for this study from the Advisory Committee on Ethics in Behavioural Science Research, University of Saskatchewan. A copy of the approval letter from the Advisory Committee is included in Appendix G.

Chapter 4

Findings

4.1. Response Rate to Questionnaires

One hundred eighty-two survey questionnaires were mailed to participants who graduated during the first fourteen months of the *AsthmaTrec*® program delivery (May 1999 to September 2000). Within three weeks of the first mailing date, 74 questionnaires were returned. After the initial three-week period, a reminder card was mailed and an additional 10 completed questionnaires were returned by mail. A further reminder letter was mailed at nine weeks with a return of 12 questionnaires by mail and 3 questionnaires returned by e-mail. At 12 weeks a letter with an accompanying replacement questionnaire was mailed to all of the non-responding participants. A further 20 questionnaires were returned by mail. Twelve questionnaires were returned to sender because participants had moved and there was no known forwarding address. These returned questionnaires with no return address were not used as part of the total percentage of completed questionnaires. Of the total 119 questionnaires returned, two graduates had changed employment and were no longer practicing as asthma educators. The findings of their questionnaires were not used for this study. The final number of questionnaires used in this study was a total of 117 representing 68.8% of the *AsthmaTrec*® participants surveyed.

4.2. Characteristics of Respondents

Table 4.1 outlines the characteristics of the respondents in terms of the distribution of graduates by age, gender, education, discipline, employment and province. The greatest percentage of respondents were in the 36-46 years age group (44.2%) followed by the 25-35 years age group at (33.6%). No respondents indicated being 24 years of age or less. Four respondents did not indicate their age group. Respondents were primarily female (83.6%) compared to males (16.4%). One respondent did not indicate his or her gender.

Many respondents (55.6%) were diploma-prepared graduates. This group consisted of registered nurses, registered respiratory therapists, nurse practitioners and diploma physical therapists. The remaining respondents (44.4%) were university-educated including four graduate level respondents and forty-eight respondents with baccalaureate degrees. The baccalaureate degrees included nursing, pharmacy and physical therapy. Fifteen of the respondents (12.8%) reported having obtained a second university degree or being a candidate for a degree or diploma or holding certificate(s) from additional courses taken.

The total respondents were from four disciplines: nursing, pharmacy, registered respiratory therapy and physical therapy. Nurses employed as nurse practitioners (n= 2) and physical therapist respondents (n=2) were included in the nurse/physical therapy category respectively. It is recognized that this category was predominately nurses. Nurses and physical therapy were combined because both disciplines' are: trained to plan and deliver health care of individuals; deal directly with patients; and are involved in treatment.

Table 4.1 Characteristics of AsthmaTrec® Respondents (n=117)

Characteristic	f	%
Age (n=113) ¹		
25-35 years	38	33.6
36-46 years	50	44.2
47+ years	25	22.2
Gender (n=116) ²		
Female	97	83.6
Male	19	16.4
Education Level (n=117)		
University Prepared	52	44.4
Graduate Level	4	3.4
Baccalaureate	48	41.0
Diploma Prepared	65	55.6
Second Degree or other course certificates ³	15	12.8
Discipline (n=117)		
Nursing/Physical Therapists ⁴	44	37.7
Registered Respiratory Therapists	42	35.9
Pharmacists	31	26.4
Employment (n=116) ⁵		
Full-time	86	74.1
Part-time	30	25.9
Province taken AsthmaTrec® (n=117)		
Saskatchewan	27	23.1
Manitoba	23	19.6
British Columbia	22	18.8
Maritimes ⁶	16	13.7
Alberta	15	12.8
Newfoundland	14	12.0
Year of CAE (n=75)		
1999	31	26.5
2000	44	37.6

¹ Four respondents did not report age² One respondent did not report gender³ Second degree or other course certificates held by respondent⁴ Nursing discipline includes two physical therapists⁵ One respondent unemployed⁶ Maritimes includes New Brunswick, Prince Edward Island, and Nova Scotia

Note. f = frequency; % = percent

Participants employed full-time (74.1%) compared to one quarter of participants employed part-time (25.9%). One respondent reported being unemployed at the time the questionnaire was completed. Most respondents (55.5%) were from the prairie provinces: Alberta, Saskatchewan, and Manitoba. British Columbia accounted for 18.8% of participants followed by 13.7% in the Maritimes, and 12.0% from Newfoundland. In 1999, the dates for challenging the certification examination were March and November with one administration of the examination in November of 2000. Thirty-one respondents (26.5%) were certified in 1999 and 44 respondents (37.6%) in November 2000. Thus, seventy-five of the total respondents (64.1%) had CAE designation while forty-two (35.9%) did not. Of the 42 respondents who were not certified, 17 (40.5%) were planning to write the national examination within the next two years.

AsthmaTrec® was selected by respondents over other asthma educator courses for three primary reasons: accessibility of the course (67.5%); availability of the course (61.5%); and because of course location (53.8%). Over one-third (37.6%) indicated that one of their reasons for selecting *AsthmaTrec*® was that the Course was accredited. Cost was also a factor identified by 21.4% as a reason they selected *AsthmaTrec*® over other available courses. A few of the respondents (5.1%) indicated that they were not aware of other asthma educator courses available to them.

Respondents were asked to identify the reasons why they took *AsthmaTrec*® (See Figure 4.1). A large percentage of respondents (79.5%) indicated that *AsthmaTrec*® was relevant to their employment. However, (76.9%) also took the course because of personal interest in learning more about asthma. Many of the respondents

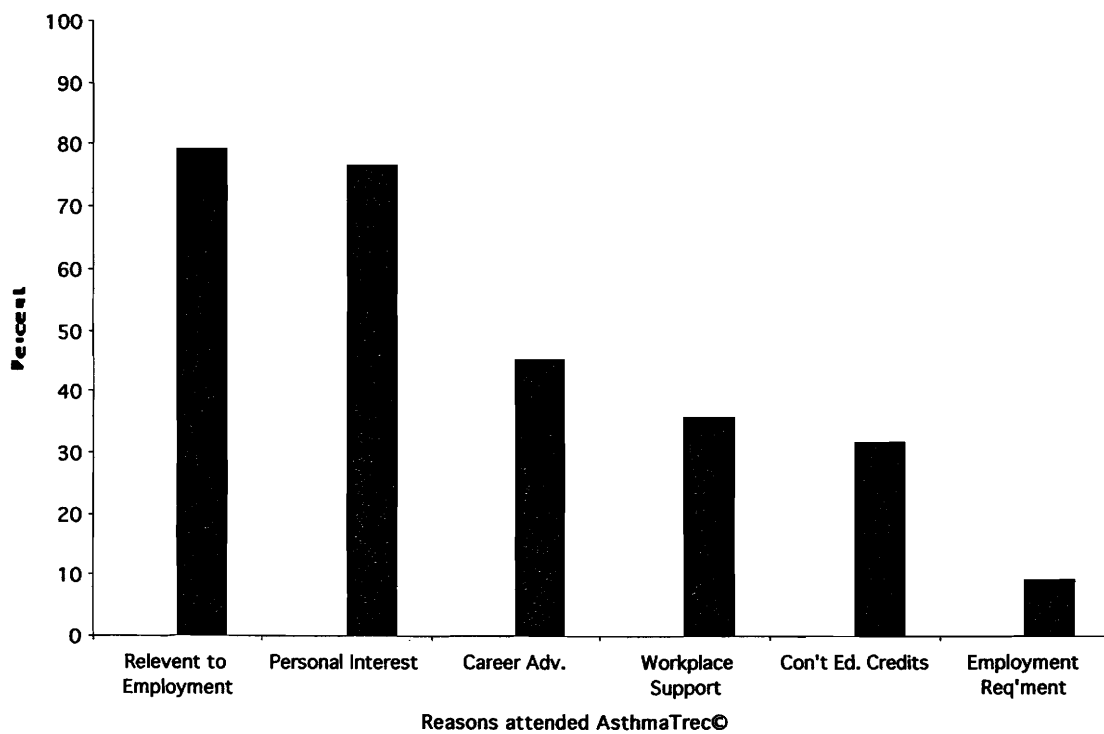


Figure 4.1 Proportion (%) of respondents' reasons for attending AsthmaTrec® (n=117)

(45.3%) selected the course for potential career advancement. Some respondents attended *AsthmaTrec*® because there was support from their workplace to attend the workshop (34.2%). The workplace support included time off work to attend and financial assistance for the Course registration fee. For some respondents (30.8%), the course provided continuing education credits for their discipline. Only 8.5% of respondents indicated that an asthma educator course was a requirement for their employment.

Table 4.2 shows the characteristics of respondents with or without CAE certification. The characteristics were categorized by age, gender, education level and discipline, and calculated by using cross tabulation for each variable for respondents with or without CAE status. CAE status was most often reported by persons in the 25-35 year age group followed by the 36-45 year age group. It is noteworthy that most of the respondents were female and had their CAE status. Of the total respondents that included nurses/physical therapists, pharmacists and registered respiratory therapists, 64.1% had their CAE status. Within each of the disciplines, 64.5% of the pharmacists followed by 64.3% of the registered respiratory therapists and 63.6% of the nurses/physical therapists have their CAE status. A small percentage of respondents (7.7%) had a second degree or another course certificate. There were no significant differences between those with CAE and those without CAE for age, gender, education level, and discipline.

When all respondents who challenged the CAE examination (n=75) were asked about the ideal interval time between taking the course and writing the national examination, 84.0% of respondents felt a one to three month time period was best, and 16.0% reported a time period of four to nine months being too long before writing

Table 4.2. Characteristics of Respondents with CAE(n=75) or without (CAE) (n=42) certification

Characteristic	n	%	
		CAE %	Without CAE%
<hr/>			
Age (n=113) ¹			
25-35 years	38	71.1	28.9
36-46 years	50	64.0	36.0
47+ years	25	52.0	48.0
Gender (n=116) ²			
Female	97	64.9	35.1
Male	19	57.9	42.1
Education Level (n=117)			
University Prepared	52	63.5	36.5
Diploma Prepared	65	64.6	35.4
Second Degree or other course certificates ³	15	7.7	5.1
Discipline (n=117)			
Nursing/Physical Therapists	44	63.6	36.4
Registered Respiratory Therapists	42	64.3	35.7
Pharmacists	31	64.5	35.5

¹ Four respondents did not report age

² One respondent did not report gender

³ Second degree or other course certificates held by respondent

Note. % = Percent

the examination. Individual comments from participants included: “one to three months is a perfect amount of time, recent enough to recall information with enough time to complete the final assignment”, and “the time between the course and the exam should be less than six months apart”.

Figure 4.2 shows the various reasons why non-CAE holders (n=42) did not write the national asthma educator certification examination. Respondents were able to select as many reasons as applied to their situation. Cost of the examination was the most frequently selected reason (45.2%), followed by belief that the CAE certification was unnecessary for employment (33.3%), and that the respondents did not have time to study (23.8%). Some respondents (19.0%), indicated that the location of the writing center for the exam was a reason they chose not to write. A timing conflict between personal activities and the date set for the examination was reported by 16.6%. Also, some indicated that exam phobia (14.2%) and previously failing the certification examination (11.9%) were reasons for not writing a second time. A small percentage (4.7%) indicated that they would like to write but had no financial support by their employer for the certification examination.

4.3. Work-Related Asthma Educator Factors

Table 4.3 shows the work-related factors reported by respondents. These included: years worked in asthma education before taking *AsthmaTrec*®; requirement of asthma educator course for employment; any difference in work responsibilities since *AsthmaTrec*®; and the involvement with a multidisciplinary team at work.

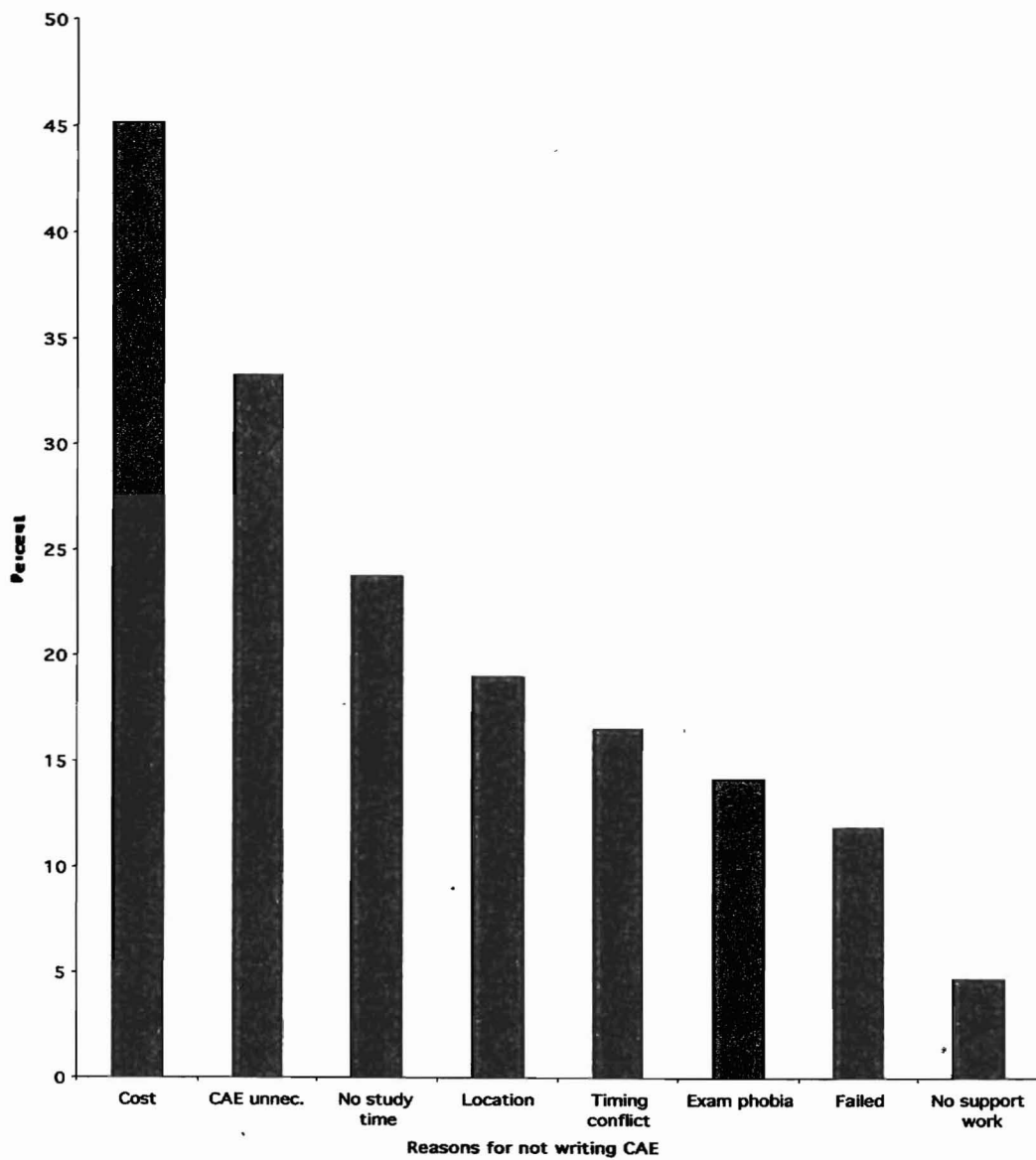


Figure 4.2 Respondents' reasons (%) for choosing not to write the asthma educator certification examination (CAE) (n=42).

Table 4.3 Work-related asthma education factors reported by respondents (n=117)

Factors	f	%
Time worked in asthma education before AsthmaTrec®		
2 years or less	41	35.1
3-5 years	26	22.2
6 years or more	50	42.8
Requirement of asthma educator course for employment		
Mandatory	10	8.5
Preferred	33	28.2
Not required	74	63.2
Has AsthmaTrec® made a difference in assigned responsibilities		
Yes	75	64.1
No	42	35.9
Multidisciplinary team member (n=109) ¹		
Yes	54	49.5
No	55	50.5

¹ Eight respondents did not indicate if worked with a multidisciplinary team

Note. f = Frequency; % = Percent

The largest percentage of respondents (42.8%) had greater than six years of work experience in asthma education prior to taking *AsthmaTrec*® with just over one-third (35.1%) of respondents having two years or less. There were 63.2% of respondents who indicated that an asthma educator course was not mandatory for employment, while 28.2% indicated that an asthma educator course was preferred for employment, and 8.5% indicating that an asthma educator course was mandatory for employment. Individual comments from respondents identified that the course was not required for employment but was “extremely useful”, “a definite asset”, “good to have,” and “my employer is in the process of making the asthma educator course mandatory for employment”. All respondents employed with asthma clinics indicated that completion of an asthma educator course was mandatory for employment.

Many respondents (64.1%) reported there was a difference in assigned work responsibilities following graduation from *AsthmaTrec*®. When multidisciplinary or team related collaboration was reported by respondents, 54 of 109 respondents (49.5%) indicated they worked in a multidisciplinary setting. The members of the multidisciplinary teams reported by respondents included a physician (general practitioner and or a specialist such as a respirologist or pediatrician), nurse (or nurse practitioner), pharmacist and or a registered respiratory therapist. Some worked in multidisciplinary activities with other disciplines such as physicians specializing as allergists, dietitians, and social workers.

The primary work settings reported by 116 participants were hospitals, communities and both hospital and community settings. Some of the respondents chose more than one area as their primary work site. One respondent indicated being unemployed at the time of the survey. Fifty-one (44.0%) respondents reported working

in a hospital setting only, with 33 (28.4%) employed in a community setting and 32 (27.6%) working in both hospital and community settings.

The primary area of work responsibility reported was direct patient care (n=88) with 11 respondents (12.5%) working primarily in pediatrics, 28 (31.8 %) working with adults, including the elderly, and 49 (55.7%) working with more than one group. Patient/client group settings within direct patient care area (n=88) included: 28 (31.8%) seeing outpatients in the hospital environment; 24 (27.3%) seeing outpatients in a community setting; 24 (27.3%) seeing more than one age group; and 15 (17.0%) seeing patients in the hospital.

Table 4.4 shows the types of asthma education initiatives reported by respondents since completing *AsthmaTrec*® and in the six months prior to the survey. Many respondents reported being involved in more than one area of asthma education since completion of *AsthmaTrec*®. Involvement with one-to-one counseling was reported by (88.0%) followed by conducting asthma education programs (44.5%). Six percent of respondents had not been involved as educators with any asthma education since taking *AsthmaTrec*®. Asthma education programs conducted included both professional and patient groups.

When respondents were asked to indicate how many asthma education sessions they delivered in the past six months, 71.8% of respondents were actively involved with one-to-one counseling, 25.6% organized and facilitated programs in asthma education, 23.9% delivered group asthma education sessions, and 23.1% were involved with education sessions in asthma clinics. Answers to this question were recorded with various time frames that did not permit further computation of any findings for time spent in initiatives. The facilitation of asthma education programs

Table 4.4 Asthma education initiatives reported by respondents (n=117)

Educational Initiative	f	%
AsthmaTrec® asthma education		
After completing course		
One-to-one counseling	103	88.0
Programs in asthma education ¹	52	44.5
Development in asthma clinic	35	29.9
Group sessions	28	23.9
None	7	6.0
Asthma education in the past six months		
One to one counseling	84	71.8
Programs in asthma education	30	25.6
Group sessions	28	23.9
Development in asthma clinic	27	23.1

¹ Professional and patient programs were included in the same category

Note. f = Frequency; % = Percent

included professional and patient/client programs in the same category.

4.4 Findings Related to the Research Questions

4.4.1. Research Question 1. Does the course content from *AsthmaTrec*® provide graduates with important knowledge for asthma education regardless of discipline?

This research question focused on the participants' perspectives on the importance of each content topic from *AsthmaTrec*® in their own current practice as an asthma educator. Table 4.5 presents the perceived importance of each content topic.

Respondents identified most of the content components related to asthma management in *AsthmaTrec*® as essential or very important in practice. Course content topics such as: patient asthma history, assessing asthma severity and control, asthma management-environmental measures, lung function, asthma patient self-management, action plan, patient diary form, and team approach to asthma management all had a range from moderately important to essential (4.26-3.78). No respondents reported any of the above areas as not important. The areas selected as somewhat important to essential were those involving the management with the client/patient.

Content topics relating to educational perspectives such as theories, health education principles, and learning styles were identified as moderately important. Areas of the course with mean scores lower than 3.5 (moderately to somewhat important) included the content components related to education for teaching. These topic areas included: learning styles and characteristics of children and adults, predisposing, enabling and reinforcing factors, and health education principles. In *AsthmaTrec*® the predisposing, enabling, and reinforcing factors discuss areas that influence or cause

Table 4.5 AsthmaTrec® Respondents' Perceived Importance of Course Content and Skills Expressed as Mean Scores, Standard Deviation, Median and Range (n=117)

Course Content, Perceived Importance	X ¹ (SD)	Median	Range
Asthma Management			
Asthma Management-Pharmacotherapy	4.83 (0.50)	5.0	1-5
Triggers	4.79 (0.58)	5.0	1-5
Proper Use of Delivery Devices	4.78 (0.64)	5.0	1-5
Patient Asthma History	4.72 (0.54)	5.0	2-5
Assessing Severity and Control	4.70 (0.58)	5.0	2-5
Asthma Management-Environmental Measures	4.66 (0.62)	5.0	2-5
Asthma Patient Self-Management-Action Plan	4.55 (0.69)	5.0	2-5
Asthma Pathophysiology	4.50 (0.76)	5.0	1-5
Lung Function	4.43 (0.71)	5.0	2-5
Asthma Patient Self-Management-Diary Form	4.39 (0.74)	5.0	2-5
Communication Skills	4.32 (0.80)	4.0	1-5
Team Approach to Asthma Management	4.26 (0.74)	4.0	2-5
Circumstances Warranting Referral to Specialist	4.22 (0.90)	4.0	1-5
Follow-Up Visit	4.21 (0.90)	4.0	1-5
Patient Goal Setting	4.13 (0.75)	4.0	1-5
Asthma Educator's Community Resource List	4.07 (0.90)	4.0	1-5
Issues Related to Patient Compliance (algorithm)	3.98 (0.86)	4.0	1-5
Environmental Walkabout for the Home	3.89 (0.95)	4.0	1-5
Ideal Asthma Education Process (final assignment)	3.83 (0.91)	4.0	1-5
Pre-Workshop Pre-Test	3.78 (1.11)	4.0	1-5
Educational Perspectives			
Learning Characteristics of Adult/Children	3.68 (0.99)	4.0	1-5
Direct Instruction Model	3.59 (1.08)	4.0	1-5
Learning Styles	3.43 (0.96)	4.0	1-5
Predisposing, Enabling and Reinforcing Factors	3.39 (1.07)	3.0	1-5
Health Education Principles	3.39 (1.07)	3.0	1-5
Theories (social cognitive, self-efficacy and social support)	2.74 (1.10)	3.0	1-5

¹Likert Scale

- 5 essential
- 4 very important
- 3 moderately important
- 2 somewhat important
- 1 not important

Note. x = mean scores; SD = Standard Deviation

behavior change and assist in facilitating or hindering the motivation to change behavior. Health education principles of learning are instrumental steps in learning the transferring of knowledge, skills and resources to patients/clients in an educational setting. Content areas related to learning theories had the lowest mean score of 2.74. The theories discussed in the workshop included social cognitive, social support and self-efficacy theories of behavior change.

Figure 4.3 shows the percentage of respondents by discipline who used more than 50% percent of course content from *AsthmaTrec*®. The nursing/physical therapy group (70.7%) reported using more than 50% of the course content in their practice followed closely by registered respiratory therapists (64.3%). All disciplines appeared to use the course content equally with no group using less than 50% of course content in their practice. Individual comments about the use of the course content included, “while I use a considerable amount of the course content in my work, only a small percentage of course material was new to me”; “all of the information is applicable in an asthma clinic setting”; and, “I don’t teach the whole spectrum, but use the knowledge for overall understanding”.

4.4.2. Research question 2. Does the course content from *AsthmaTrec*® provide graduates with useful skills for asthma education regardless of discipline?

Table 4.6 shows the perceived importance of skills learned from *AsthmaTrec*®. Participants were asked to rate how often each of the skills is used in their practice using a five-point Likert response scale ranging from (5) every occasion to (1) never. Skills such as proper inhaler technique, assessing environmental factors, taking a patient history, and assessing patient adherence/compliance were identified as asthma

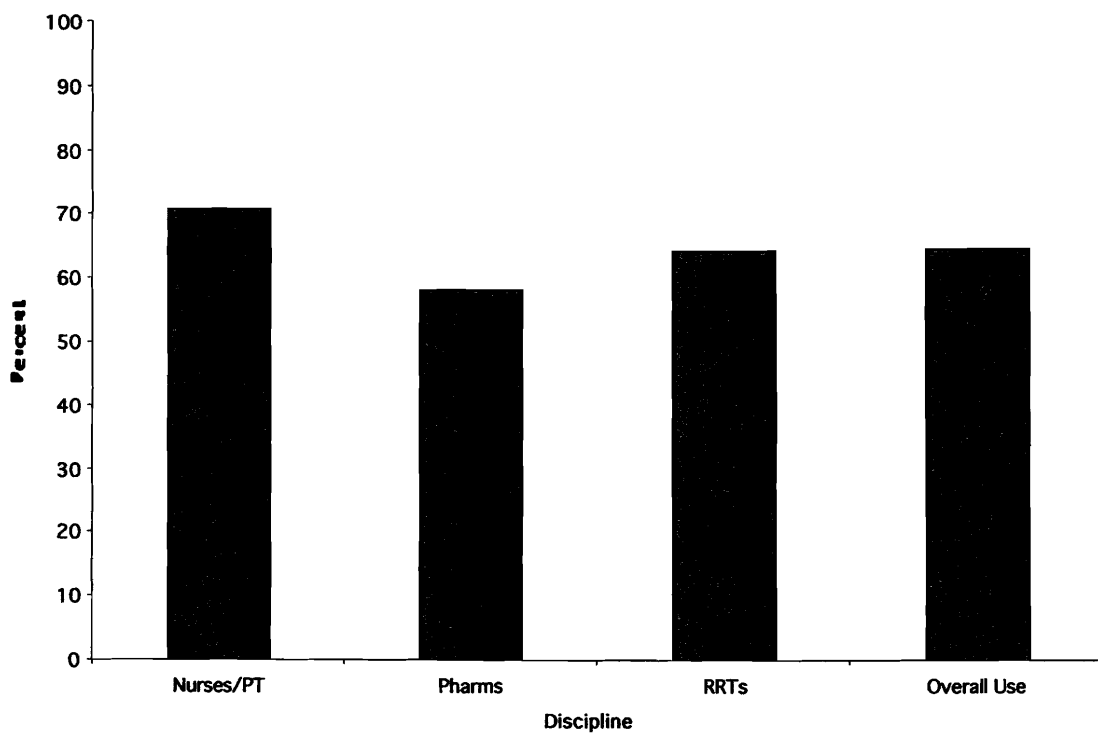


Figure 4.3 Proportion (%) of respondents by discipline who used more than 50% of AsthmaTrec® course content in their practice. (n=117)

Table 4.6 Perceived Importance of Skills from AsthmaTrec® Expressed as Mean Scores, Standard Deviation, Median and Range (n=117)

Course Skills, Perceived Importance	X ¹ (SD)	Median	Range
<u>Asthma Management</u>			
Proper Inhaler Technique	4.66 (0.63)	5.0	2-5
Assessing Patient Adherence/Compliance	4.09 (0.99)	4.0	1-5
Taking a Patient History	3.75 (1.26)	4.0	1-5
Assessing Environmental Factors	3.72 (1.18)	4.0	1-5
Teaching Use of Peak Flow Meter	3.39 (1.12)	3.0	1-5
Using Direct Instruction Model (DIM)	3.34 (1.28)	4.0	1-5
Teaching Use of the Patient Action Plan	3.29 (1.28)	4.0	1-5
Facilitating Patient Goal Setting	3.14 (1.19)	3.0	1-5
Teaching Use of the Patient Diary Form	3.00 (1.11)	3.0	1-5
<u>Educational Perspectives</u>			
Assessing Predisposing, Enabling & Reinforcing Factors	2.91 (1.23)	3.0	1-5
Applying Health Education Principles	2.90 (1.20)	3.0	1-5

¹Likert Scale

- 5 every occasion
- 4 regularly
- 3 occasionally
- 2 rarely
- 1 never

Note. x = mean scores; SD = Standard Deviation

management information used regularly to every occasion in respondents' practice. As with respondents' perceived importance of these concepts, skills associated with assessing predisposing, enabling, and reinforcing factors and applying health education principles were used occasionally to rarely in respondents' practice. Respondents' comments identified that, "the skills would have greater value if more practical application were included in the format of the course".

Figure 4.4 shows the percentage of respondents by discipline who used more than fifty percent of the skills from *AsthmaTrec*®. Again, the skills component was most frequently used by nursing/physical therapy (73.0%). Both registered respiratory therapy and pharmacists reported much lower use of skills in their practice, 61.9% and 67.8% respectively. Overall, of the 117 respondents, 68.2% were using fifty percent or more of the skills in their practice. There was a fairly even distribution between the three discipline areas of nursing/physical therapy, pharmacy and registered respiratory therapy, for skills used. Individual comments from respondents included, "reviewing how to use the delivery devices and how to instruct patients were very useful in the course," and "although I have used these important skills learned in *AsthmaTrec*®, I was using most of them prior to taking the course".

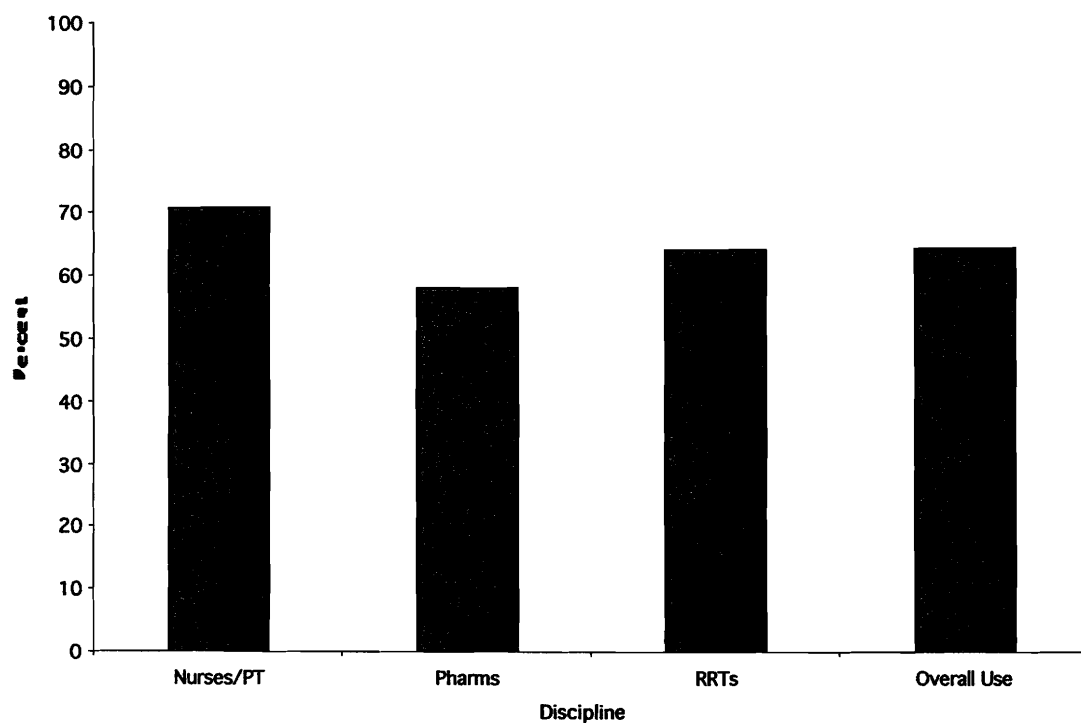


Figure 4.4 Proportion (%) of respondents by discipline who used more than 50% of AsthmaTrec[®] skills in their practice. (n=117)

4.4.3. Research Question 3. What is the perspective of graduates regarding the strengths and limitations of the course content and value?

Content analysis was used to categorize the answers to the open-ended questions regarding the content topics. Three questions were asked: (a) What other topics could be added to *AsthmaTrec*®; (b) What topic(s) could be modified? What suggestions do you have for modification(s) in the course; (c) What topic(s) areas could be eliminated from *AsthmaTrec*®? Similar responses were grouped and categorized for each question.

Thirty-two respondents (27.3%) identified additional topics that should be in the Course adding strength and more value including:

1. More information on pharmacotherapy- covering areas such as alternative and complementary medicine and over-the-counter medications;
2. Smoking cessation / altering smoking behaviors for patients and their families with asthma;
3. The stages of change and the factors influencing behavior changes in a practice setting;
4. A discussion on family coping issues, and the development of resources for families and clients with asthma;
5. A patient/parent/professional viewpoint case-study on the self-management of asthma;
6. The development of a networking system with other asthma educators to increase communication and share experiences;
7. Promotion of the asthma educator specialization to professional groups and in the community to increase awareness of the specialization; and

8. Information on allergies.

There were comments from 43 respondents (36.8%) regarding topics that could be modified in *AsthmaTrec*® including:

1. Less details on theories, use simpler format and language and more examples and practical application of theories;
2. Education principles need to be made more user-friendly as there are many definitions, that are difficult to understand and use in a practice setting;
3. Less focus on the details of learning styles and characteristics of children and adults;
4. More information on decision-making and critical thinking skills and more scenarios on patient self-management;
5. The direct instruction model and the section on predisposing, enabling and reinforcing factors would be more applicable if there were more practical examples; and
6. Respondents want more time during the course to exchange resources.

Forty-three respondents commented on topic areas that could be eliminated from *AsthmaTrec*®. The majority of comments related to eliminating educational theories; the education principles; predisposing, enabling, and reinforcing factors for education; and learning styles and characteristics.

Areas of the Workshop that were repeatedly commented on as requiring modification or elimination included topics such as: theories; learning styles; learning characteristics; direct instruction model; predisposing, enabling and reinforcing factors; and health education principles. To assess whether CAE status made a difference for reported perceptions a T- test for independent means was performed. When examining

content topics and differences between those who had CAE status and those with no CAE status, the respondents with CAE differed significantly on perceptions of learning styles and learning characteristics in the course content. CAE respondents perceived learning styles and learning characteristics as more important ($t_{115} = 3.344$, $p < 0.01$, and $t_{115} = 2.67$, $p < 0.01$, respectively).

There was no significant difference between CAE and no CAE status for the importance of the course content topics of theories, ($t_{115} = 1.810$, $p < 0.73$); direct instruction model, ($t_{115} = 1.026$, $p < 0.307$); predisposing, enabling and reinforcing factors, ($t_{115} = 1.352$, $p < 0.179$); and health education principles, ($t_{115} = 1.1292$, $p < 0.199$). From the cross-sectional study, having CAE status did not make a difference for the above four topics that were frequently cited by respondents as requiring modification or elimination in *AsthmaTrec*®.

Table 4.7 presents participants' perceptions of how well *AsthmaTrec*® met their education needs at work including; confidence in facilitating asthma education; practicality of skills; the preparation in meeting clients needs; and the course making a difference in the way asthma education is delivered. All mean ratings for these items were greater than 4 on the Likert scale (somewhat agree). There were no respondents strongly disagreeing that the skills and course content were not practical in meeting their asthma education needs at work.

Table 4.7 Respondents perceived importance regarding AsthmaTrec® meeting asthma educators needs at work (n=117)

Statement	X ¹ (SD)	Median	Range
AsthmaTrec®, increased my confidence in facilitating asthma education	4.41(.88)	4.0	1-5
Skills learned in AsthmaTrec®, are practical in meeting asthma educator needs at work	4.38(.77)	5.0	2-5
AsthmaTrec® prepared me to meet my clients' education needs	4.26(.76)	5.0	1-5
AsthmaTrec® has made a difference in the way I deliver asthma education	4.21(.91)	4.0	1-5
Course content learned in AsthmaTrec®, are practical in meeting asthma educator needs at work	4.17(.76)	4.0	2-5

¹ Likert Scale

- 5 strongly agree
- 4 somewhat agree
- 3 neither agree or disagree
- 2 somewhat disagree
- 1 strongly disagree

Note. X = Mean scores; SD = Standard Deviation

AsthmaTrec[®] increased confidence in facilitating asthma education for the majority of respondents. The skills component was practical and the Course prepared educators to meet clients' education needs in their work environment. Respondents believed that having taken AsthmaTrec[®] made a difference in the way they deliver asthma education. The practicality of the course content and skills learned ranged from somewhat disagree (2) to strongly agree (5). Individual comments reported; "I did gain knowledge and feel more comfortable teaching about asthma"; "an excellent course. It provided me with increased knowledge and self-confidence as a respiratory educator"; "We need greater co-operation with medical staff to let them know we are out there and can help their patients"; and "I thought the course was well designed and fully met my needs".

4.4.4. Research Question 4. Has AsthmaTrec[®] made a difference in the practice of asthma educators in delivering asthma education?

Table 4.8 shows amount of work time that participants spent in asthma education before and after taking AsthmaTrec[®]. Only 12.8% (n=15) of respondents were working eleven hours or more in asthma education before taking AsthmaTrec[®], and the number of respondents who spent eleven hours or more in asthma education doubled to 25.6% following AsthmaTrec[®].

Table 4.8 Work in Asthma Education/week (n=117)

Work in Asthma education	f	%
a) Before AsthmaTrec®		
10 hours or less/week	102	87.2
11 hours or more/week	15	12.8
b) After AsthmaTrec®		
10 hours or less/week	87	74.3
11 hours or more/week	30	25.6

Note. f = frequency; % = percent

When recognition changes following *AsthmaTrec*® were examined based upon CAE status, those having CAE status were more likely to be working with other health care team members (80%), ($\chi^2 = 8.32$, $df = 1$, $p = < 0.01$), and (53.3%) working with the general public, ($\chi^2 = 11.26$, $df = 1$, $p = < 0.001$). These respondents with CAE status were more likely to be asked about their opinions and consulted as a resource person about asthma as compared to respondents not having CAE status. However, there was no significant difference noted for recognition from their employer ($p < 0.51$) or health districts ($p < 0.13$). Table 4.9 shows the recognition groups and chi-square by CAE status.

Figure 4.5 shows the types of barriers respondents experienced that prevented or limited their involvement with asthma education programs in their workplace. Time constraints were identified the most important barrier by 73.5% of respondents, followed by financial constraints at 44.4%, and facility limitations for 42.7%. Some respondents had a small client base and indicated that there was limited knowledge in the community that the asthma educator specialty existed. Language and literacy level of resources were identified by 18.8% as a barrier to education. Some written comments support the choices respondents made to barriers including; “we need to educate the professionals and the public that this is a useful resource”; “there is no support from management with limited time allowed for presenting asthma education”; and “there is not enough brochures or educational materials for various literacy levels”. Two respondents noted that other health care professionals and patients with asthma may not recognize the value and importance of asthma education in the management of asthma.

Table 4.9 Respondents Recognition as a resource person by CAE/No CAE in working with a Health Care Team, the General Public, Employer and the Health District

Increased Recognition	% CAE	% No-CAE	¹ p-value
Health Care Team (n=83)	80.0	54.8	p<0.01
General Public (n=49)	53.3	21.4	p<0.001
Employer (n=77)	68.0	61.9	p<0.546
Health District (n=29)	29.3	16.7	p<0.13

¹ significance (p<0.05)

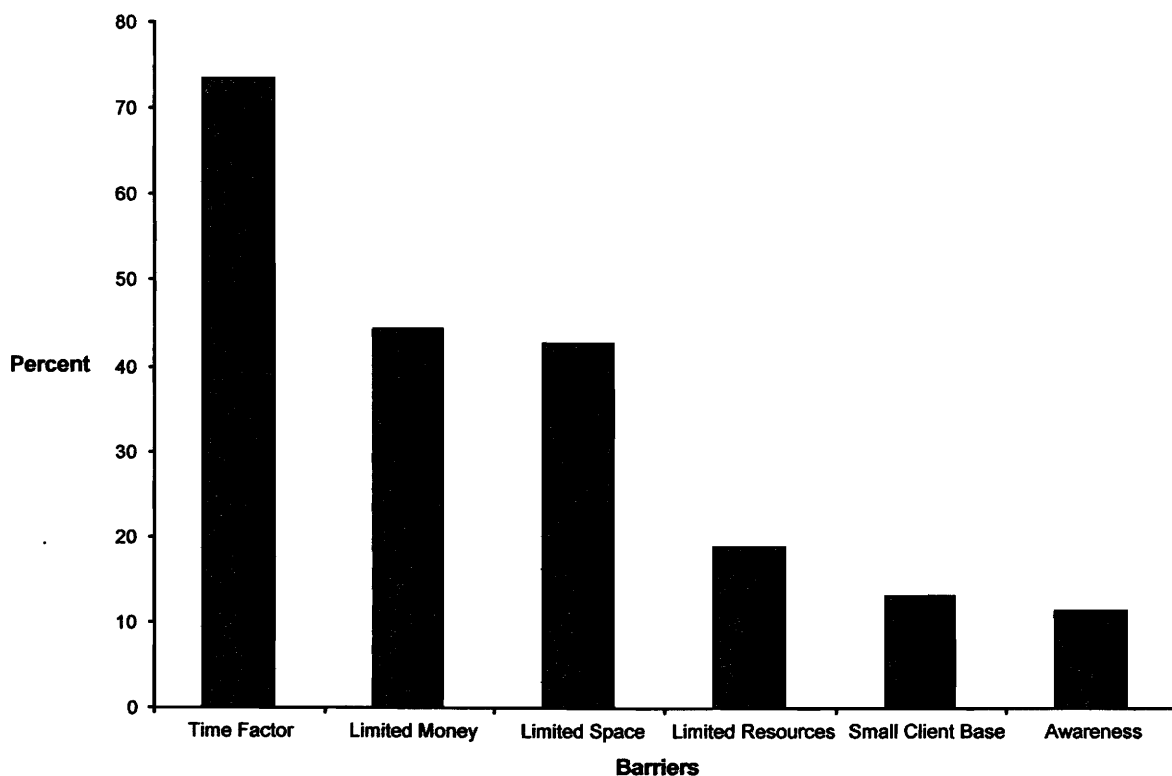


Figure 4.5 Proportion (%) respondents perceiving barriers to asthma education (n=117)

4.4.5. Research question 5. What continuing education opportunities do the graduates view as being valuable for continued asthma education?

Content analysis was used to categorize the answers to the open-ended questions regarding what future education opportunities are valuable to them as effective asthma educators. There were over 90 comments from respondents regarding their perception of future continuing education options for asthma education. In general, respondents indicated that continuing education was essential. In particular, many respondents indicated that keeping informed about up-to-date information and skills in their practice was critical. Other important areas include networking with other CAE colleagues and the establishment of an accreditation committee that would ensure continuity between Canadian asthma educator programs.

The following comments from respondents emphasize how important it is to keep current in the field. One participant noted that, “keeping informed of new approaches to asthma management is essential,” while another stated, “continuous updating of information and skills and keeping up with the latest trends and changes in treatment practices is important”.

When asked who is responsible for meeting asthma education needs, respondents (n=69) identified, CNAC and “self,” the asthma educator as being responsible for meeting continuing asthma education needs in the future. Secondly, the Lung Associations were identified as being responsible in keeping asthma educators updated, followed by the employer, *AsthmaTrec*® program, pharmaceutical companies, physicians and professional associations. One individual reported, “More materials are needed to up-date educators, so that we know we are on the right track, and names of educators in each province to use as resources”.

Figure 4.6 shows the respondents' present methods of updating their knowledge in asthma education. To keep updated, respondents identified that medical journals were most frequently used (76.1%) followed by The Canadian Asthma Consensus Guidelines (1996) (60.7%), newsletters (56.4%), the use of the internet for asthma information (50.4%), and attending conferences (35.0%). Other less frequently used updating methods included; video-conferences (34.2%), medical rounds (29.1%) and networking with other asthma educators (11.8%).

Table 4.10 shows by frequency and percent the challenges respondents' experienced for updating their asthma education. Their challenges were mainly related to financial constraints (53.8%) obtaining time off work (41.9%) and limited access to resources/reliable updated information (33.4%). Limited personal time to update was a challenge for 20.5% of respondents.

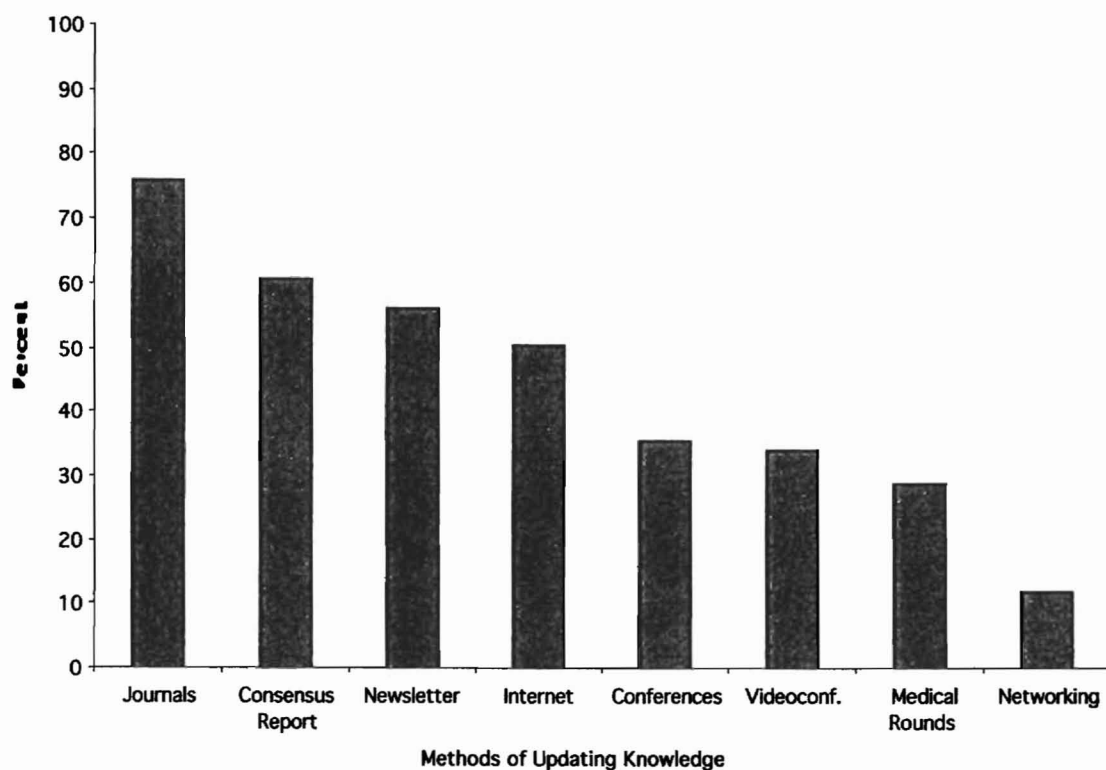


Figure 4.6 Proportion (%) of respondents' using selected methods of updating knowledge in asthma education (n=117)

Table 4.10 Respondents' Challenges For Updating Asthma Education (n=117)

Challenge	f	%
Financial Constraints	63	53.8
Obtaining time off work	49	41.9
Limited access to resources/information	39	33.4
Limited personal time	24	20.5

Note. f = frequency; % = percent

Chapter 5

Discussion

5.1. Overview

In this chapter, the research findings are discussed according to the characteristics of the respondents and the findings related to the research questions. Research questions 1 and 2 are combined in the discussion, followed by a discussion of the remaining three research questions. The chapter concludes with a discussion of the limitations, recommendations for further study, and conclusions.

This study proposed to evaluate, from the perspective of successful graduates, the effectiveness of *AsthmaTrec*® in providing the knowledge and skills required for conducting asthma education in the participants' practice setting. The findings from the majority of respondents indicated that *AsthmaTrec*® was successful in meeting the needs of program participants. Generally, the Course provided respondents with the necessary knowledge and skills in their practice for asthma education for patients and their families.

Graduates identified several strengths in the Course including the practical information in the course content and the techniques that directly relate to self-management of asthma. Respondents who have had previous experience with asthma education indicated that the information presented in the Course was applicable for asthma education and included material that they have previously used and continue to

use in their practice. Components such as health education principles and theories were identified least important in the course content and were seen as limitations of the Course or not necessary within the Course.

Another interesting finding is that successfully completing *AsthmaTrec*® made a difference in more than 60% of the respondents' assigned work responsibilities. Furthermore, there was a significant difference between respondents who attained their CAE certification and respondents without CAE certification, those with CAE designation being perceived as a resource person for asthma education. Nurses were the major responders to the questionnaire. The respondents from this survey were from nursing, pharmacy, registered respiratory therapy and physical therapy. Generally, the proportion of respondents from each discipline in this survey paralleled the actual professional background of the respondents who completed *AsthmaTrec*®. Not all members of the multidisciplinary team were represented. Continuing education opportunities viewed as being the most valuable for continued asthma education included written materials such as publications and books, the use of the Internet as important access to asthma education information, and attending conferences for networking and sharing of information.

The majority of respondents in this study were female, working full-time, and primarily in the 36-46 year age range. Adult learners are generally a diverse group of individuals with varied needs and motivation for participation in learning experiences. If adult learning principles are applied to the education of educators, useful and meaningful learning experiences could result. Knowles, Holton & Swanson (1998), Merriam & Caffarella (1999), and Brookfield (1986) support the principle of the need for diversity in adult learning, with particular attention being paid to individual learning

styles, motivation for participation in adult learning activities, and the stages of development in adulthood.

Cross (1981) discusses the multiple reasons why adults engage in learning and participate in various educational activities. The main reasons for participation center on the desire to further education to improve their job prospects, the need to learn more about specific areas of interest for their work, and the desire to learning because of personal satisfaction. In this study, respondents' primary reasons for attending *AsthmaTrec*® were relevancy of the course to their activities, employment, their personal interest, and potential career advancement. An asthma educator course was not mandatory for employment for 63.2% of the respondents; however, the personal interest and motivation in taking the course, pursuing national certification were important to the respondents.

In this study, respondents indicated the ideal interval time between taking *AsthmaTrec*® and writing the national certification examination was 1-3 months as the recall of information from the Course would be more current for this examination. At the present time the criteria for the national certification examination is set at one sitting of the examination per year. This may be a concern for future *AsthmaTrec*® facilitators and participants. Given the findings of preferred time lapse between the Course and the examination, this may be an issue for the *AsthmaTrec*® Development Committee to consider when establishing dates for the workshops. For adult learners the motivation to pursue a CAE may be influenced by the present administration of the workshop and the national examination. Group interaction and shared experiences assisted participants in learning information at the workshop. Tennant (1997) notes that groups are seen as a way to promote self-understanding through shared support of facilitators

and other group members. Ultimately, it is through this group setting that “learning how to learn” can be achieved.

In this evaluation study, the respondents from *AsthmaTrec*® came from various centers across Canada, and from a variety of disciplines and work environments. The majority were from the prairie provinces. Respondents’ education level included either graduating from a diploma program or receiving a baccalaureate degree from a university. Some respondents held a second degree or other course certificate prior to attending *AsthmaTrec*®. A large percentage of the participants completing the course have had at least six years of work experience in asthma education prior to taking *AsthmaTrec*®.

From the provinces that had *AsthmaTrec*® graduates, the participants at the workshop were from all disciplines including nursing, pharmacy, registered respiratory therapy, physical therapy, physicians, and health educators (B. Bolley, personal communication, April 16, 2001). However, not all of the groups responded to the survey. Most respondents to this study were from nursing, closely followed by pharmacy, registered respiratory therapy with a couple of the respondents from the physical therapy group. There was absence of feedback from physician and health educator groups.

Torres and Dominguez (1998) focused on the advances in medicine, nursing and related health care fields by stating that, “the delivery of health care requires the expertise and combined abilities of individuals with diverse skills and knowledge who collaborate to deliver high quality care” (p.220). This focus suggests a multidisciplinary team approach to practice, where individuals of different disciplines come together to co-ordinate patient care. In specific instances in this study, respondents reported that

at this time, some disciplines were not part of their health care team for asthma education. The physician was identified as a principal team member along with a nurse (or nurse practitioner), pharmacist and/or a registered respiratory therapist. Physicians are pivotal members of the multidisciplinary group of asthma educators as their role involves the diagnosis, referral to the specialist, development of the action plan for asthma care, follow-up investigations, and work in conjunction with other members of asthma educators (The National Asthma Control Task Force, 2000). Their absence in the program may be significant in comprehensive management of asthma that includes education with asthma educators, and patients and their families with asthma. Further research into the dynamics and specific roles of the multidisciplinary asthma management team would be beneficial to examine and gain an understanding of the collaboration between team members.

5.2. Discussion of Findings

5.2.1. Research Questions 1 & 2. Does the course content from *AsthmaTrec*® provide graduates with important knowledge and skills for asthma education regardless of discipline?

Generally, the course content from *AsthmaTrec*® provided respondents with useful and important knowledge and skills to conduct asthma education in their practice. Participants valued the majority of the content and skills components in their practice as the “need to know” components of asthma management. Respondents reported that this information made them more aware of asthma issues, assisted with incorporating the principles of asthma education, and tied all of the components of asthma education together. The participants considered these areas as essential in the

program as they were practical and able to apply them when involved with asthma education.

Merriam and Caffarella (1999), point out that the application of learned information occurs because of its usefulness to the responsibilities and duties in adults' professional roles. In this study, the application of information from *AsthmaTrec*® related to knowledge and skills was seen particularly with the nurses/physical therapy group, followed closely behind by the registered respiratory therapists. Pharmacists used selected skills. This finding could be explained by the nurse/physical therapist involvement in direct patient care in a hospital and/or an outpatient setting. Generally, nurses/physical therapists are available at the front-line of education with asthma patients and their families. The pharmacists educational involvement and role would be more specifically related to patient education of pharmacotherapy after initial patient contact. Further research in examining the scope of practice in actual work situations between each of the disciplines would be of value.

Respondents who identified theories and health education principles as the topics of least importance in the course, reported that there was too much time spent on these areas. Some were unfamiliar with the vocabulary and found these components confusing and difficult to understand in the way they were written. However, some did state that they gained purpose and understanding of the theories when applied in a case scenario. One of the objectives of *AsthmaTrec*® directly relates to the course providing a better understanding about educational theory and the process of "how to teach" (Canadian Network for Asthma Care, 1997). If some of the respondents are experiencing difficulty in this component of the course, developers of the course are challenged to devise approaches to overcome these concerns.

Knowles, Holton and Swanson (1998), note that when learners understand the goals and purposes for learning, the elements for understanding information begins to take more shape, and knowledge components in a learning session develop to a positive learning experience.

5.2.2. Research Question 3. What is the perspective of graduates regarding the strengths and limitations of the course content and value of the course?

Respondents considered the practical information in the Course and the use of techniques that directly related to the self-management of asthma as major strengths in *AsthmaTrec*®. In addition, they perceived that the variety of teaching methods used during the Course provided strength to their understanding of the content. Most participants indicated that the course increased their confidence in facilitating asthma education and changed the way they deliver asthma education. Knowles, Holton & Swanson (1998), reinforce that adult learners will be most motivated and find value in what they are learning when the information is important to their life and work situation. The strengths in the course content of *AsthmaTrec*® appeared to relate to what the respondents rated as essential for their work in asthma education. Respondents reported that they enjoyed discussing each other's cases and the way situations were managed in their facility.

The major perceived program limitations included too much time spent on the details of definitions of theories, health education principles, predisposing, enabling and reinforcing factors, and learning styles and characteristics. Respondents indicated that there was not enough on practical application of these topics and repeatedly indicated that the education-related theories would hold more value to them in *AsthmaTrec*® if

more practical and real life application were included in the format of the Course. In this study respondents identified areas from the course content that should be eliminated because of the practicality of theory in actual practice. Some respondents indicated that much of the information they learned during the Course reinforced what they were previously doing for asthma education. Brookfield (1986) reminds adult educators that each individual in the learning process exhibits diverse learning styles, so the strategies and techniques for teaching and learning are critical in adult programs to enhance learning for all participants involved which results in more meaningful experiences and effective learning.

A variety of methods were used in presenting the information in the Course to accommodate all learning styles. Some respondents did not enjoy learning about theory and others had difficulty in understanding the information about theory. Merriam and Caffarella (1999) notes that practitioners do function on the basis of theory and knowledge in their practice. A task for the *AsthmaTrec*® Development Committee would be to consider how to develop appropriate strategies and creative approaches to learning these necessary components in future courses of *AsthmaTrec*®.

5.2.3. Research Question 4. Has *AsthmaTrec*® made a difference in the practice of asthma educators in delivering asthma education initiatives?

There was a significant difference between respondents with asthma educator certification (CAE) and without CAE status in respect to their perceptions of themselves as a resource for asthma education at work, as a health care team member, and as an asthma educator with the public. More respondents who were CAE's indicated that the certification allowed them to have more credibility and acknowledgment in relation to their job position from co-workers and when educating about asthma in the community.

Many CAE respondents indicated that their co-workers, patients and their families, physicians and respirologists were appreciative of the asthma education provided. There were a number of respondents regardless of CAE status, who indicated they did receive recognition and acknowledgment in relation to their job from their employers since taking *AsthmaTrec*®. Although many were recognized for special skills as an asthma educator, more awareness of the role of an asthma educator was needed. Cervero (1991); and Merriam & Caffarella (1998), note that when adult learners continue to learn and gain knowledge in a specific area, this knowledge reflects on their practice, resulting in their practice being strengthened. The findings from this study support the value and recognition that respondents perceived for the acquired CAE, which potentially encourages future participants to work towards their CAE status.

Barriers to conducting educational sessions include those imposed by institutions providing services (Cross, 1981). In this study, reported barriers to delivering asthma education to patients and families were related to time constraints at their place of employment, financial constraints due to budgetary factors at their place of employment, facility limitations, and inadequate materials available for various literacy groups. Other barriers identified by respondents included having a small client base to maintain skills, especially in rural or remote communities; minimal referrals to the educator from the physicians; and the lack of knowledge by professional and community groups of the asthma educator role. Cross (1981) identified two similar institutional barriers, a lack of time at work to fulfill all of the needs; and lack of financial support to initiate programs. This data regarding institutional barriers may be important for asthma education. If these barriers are examined and strategies are developed to overcome them, it would assist in the success of asthma educators meeting the needs for asthma education. Collins

(1998) reinforces the importance of understanding political dimensions related to educators' practice. For asthma educators, awareness of health care policy in respect to assignment of work roles, beliefs about health care, and values will influence the educators' ability to conduct asthma education. Cote, Golding, Barnes & Boulet, (1994) note the importance of finding solutions to the many difficulties and existing barriers that are experienced by educators. Barriers in conducting asthma education need to be addressed and identified as part of the process in the course content to create awareness and scope of the concern in practice. At present, the process of dealing with this aspect is not discussed in the Course.

5.2.4. Research Question 5. What continuing education opportunities do the graduates view as being valuable for continued asthma education?

In this study, respondents identified written materials such as medical journals, the Canadian Consensus Report, newsletters, and books as the most frequent sources for continued asthma education followed by the use of the internet for accessibility of information. Participants also indicated that attending conferences to share information, knowledge and experiences was useful as a method to update asthma information. The National Asthma Control Task Force (2000) supports the increase of networking among asthma educators as a way of keeping current with asthma management. The use of the internet and attending conferences identified in this study would support the Asthma Task Force vision. Eraut (1994), notes that individuals focus on a selected number of methods for continued learning: written materials; other individual's; personal experience, and reflection. As noted in the current study, written materials were most frequently used for continuing education.

Smutz and Queeney (1990), focus on individual needs in continuing education as being influenced by demands of workload, employers, professional commitments to participate in continuing education activities, and demands from the general public in keeping updated in specific areas. Professionals need to be involved with lifelong learning as an essential educational commitment in their area of practice. In this study, many respondents identified themselves as being responsible for continuing education which relates to the self-motivation aspect of staying updated with the dynamic changes in the management of asthma. This motivation requires participants' recognition of the importance of keeping abreast of new information and educational materials.

Other groups identified as important in addressing the continuing education needs included: CNAC; the Lung Association; the employer; pharmaceutical companies; physicians; and professional associations. The challenges respondents indicated they had in updating asthma information include: financial constraints, obtaining time off work, limited access to asthma education resources, and limited personal time available. The challenges for continuing education needs would be valuable to address and explore in the future as continued asthma education has an impact on asthma educators in their work environment.

5.3 Limitations of the Study

The following points outline the limitations of the study that were considered when interpreting the findings:

- 1) The time of year the questionnaires were mailed out may have influenced the lower response rate. As the initial questionnaires were mailed out in late June, it is possible that some of the participants may have already left on holidays or have been away from

their employment for a period of time over the summer months. Respondents were contacted four times during the data collection period as recommended by Dillman, (2000). This resulted in a 68% response rate. However, leaving mail-outs to a later date would have further delayed data collection possibly affecting recall of information;

2) The fourteen month time period between actually taking *AsthmaTrec*® reviewing the questionnaire may have affected recall of the importance of educational activities and use of information from the course materials. However, this fourteen month time period also provided opportunities for participants to use their newly learned skills related to the Course in their practice.

5.4 Implications for Asthma Educators

Utilization of findings is an important aspect for program evaluation. It is relevant to note that there has been minimal research done on the evaluation of knowledge and skills derived from asthma education programs. This study provided valuable insight of the usefulness into the course content and skills from the participants who have graduated from *AsthmaTrec*®.

Education for professionals involves more than the training and involvement in group sessions. Baskett, Marsick & Cervero (1992), reinforce that the education for professionals involves awareness and working with, “public policymakers, individual professionals, education providers, consultants and professional associations” (p. 117). The findings from this research have implications for policymakers, consultants, education providers, and professional associations. Respondents identified many individuals and organizations are responsible for meeting asthma educator needs in the future including themselves as educators. CNAC, the Lung Associations,

pharmaceutical companies, physicians and professional associations are groups perceived to have a stake in the future to assist with continuing education.

It cannot be over emphasized how critically important the educational components are in the *AsthmaTrec*® program. Understanding educational foundations are meant to enhance the learning process with the course content. This can be accomplished by a systematic learning approach that can be applied in practice situations. This evaluation study has emphasized the importance of revisiting the challenges of providing positive learning experiences for theories and health education principles in the context of adult learning theory. In recognizing the diversity and motivation of the learners who attend the Course, certain content areas could be modified using creative, user-friendly approaches such as problem-based learning and case studies. Such approaches could directly deal with real life situations of those adult learners in their workplace. As well the pre workshop study module component could be made available on the Lung Association website with on-line assistance and interactive components addressing areas of interest and concern.

The purpose of the pre-study module was to prepare health care professionals for entry into any one of several national certification programs for asthma educators (Canadian Network for Asthma Care, 1997). The course curriculum for *AsthmaTrec*® was developed from the learning objectives from CNAC identified in the pre-study module. Considering the principles of adult education a more learner-centered approach that addresses needs of participants in the Course may be required. The *AsthmaTrec*® Development Committee may need to consider reevaluating the learning objectives in light of the findings of this study.

All disciplines should be encouraged to be involved in incorporating their learning needs to the Course content. Ultimately this will create a more multidisciplinary approach in the practice of asthma education in the workplace. Advanced courses with discipline specific content could be provided to enhance learning of information and teaching specific to each disciplines's work environment.

The respondents have voiced their perspectives of highly valued parts of the Course and other areas that were too structured and detailed. The challenge to the *AsthmaTrec*® Development Committee is to make parts of the course content more user-friendly and applicable for practice.

5.5 Recommendations for Further Study

The following are recommendations for further evaluation study in asthma education:

1. There is a need to identify the collaborative efforts of other stakeholder members in respect to asthma education and assess their attitudes, behaviours and beliefs towards asthma education practice in their community. Identifying the concerns and issues of stakeholders would be valuable in providing a supportive environment for asthma education. The stakeholders that have been identified as having interest in the success of *AsthmaTrec*® include CNAC, as being primarily involved in overseeing the standards of practice; the *AsthmaTrec*® Development Committee who is responsible for the updates for the Course curriculum; the Course facilitators of *AsthmaTrec*® who have a vested interest in delivering the most up-to-date asthma education information to participants; the educators from various disciplines taking *AsthmaTrec*®; the employers

who support the continuing education of the health care professionals; and the clients/patients who are the receivers of the asthma education information.

2. An evaluation study examining *AsthmaTrec*® programs from the multidisciplinary perspective would be useful. Wlodkowski (1985), noted the continued motivation in professional practice to plan education sessions is potentially as much of an educational outcome as the attainment of any learning objective during the Course. This type of study would provide information on how asthma educators incorporate the information from *AsthmaTrec*® in their practice and examine the dynamics of the multidisciplinary team. In particular, examining the perspectives of the non-respondents or low responders to this study such as the physicians, health educators and physical therapists would be useful.

3. Future study could further examine the barriers of asthma education in work environments. This information could be utilized by policy makers, educators, program developers and practitioners to facilitate and or promote asthma education in their workplace.

4. Future endeavors need to examine the strategies of how to promote the asthma educator in the work place in either hospital or community. There are continuing education credits provided to physicians and health care professionals for attending *AsthmaTrec*® that encourage many disciplines to attend education programs. Promoting continuing education credits for professionals may be useful in encouraging these disciplines to participate.

AsthmaTrec® is a unique course where various disciplines have an opportunity to work together and learn about the most up-to-date and innovative approaches to

asthma self-management. Clear goals and learning objectives of the Course made available to the participants' would enhance the learners' decision to embark on the participation in the workshop and ultimately the outcome of their success. It is recognized that some changes to the program have already been made based on the new Consensus Guidelines for asthma management in Canada published in the fall of 2000.

Patton (1986) emphasizes that program evaluation assists in the collection of information about the activities and characteristics used to improve effectiveness and make decisions about a program. Ongoing evaluation of *AsthmaTrec*® will provide greater understanding of the multidisciplinary approach to asthma management. In addition, the "how to teach" components in the program where the theory and knowledge assists with the information needed for practice is important to examine in the future. The responsive approach for evaluation of these areas would be valuable in identifying the issues and concerns of the stakeholders involved in asthma education.

5.6 Conclusions

This study has shown that *AsthmaTrec*® has been effective in providing valuable and useful information, knowledge and skills that are essential in practice for asthma educators. This study provided insight for future improvements in the program, and demonstrated value and importance of evaluating and seeking the opinion of asthma educators. Respondents' perceptions of the program provide valuable information for revisions in the knowledge and skills components of the program and how some of these revisions could be implemented. Implicit in the findings is that for learning to be

effective, there needs to be collaboration between many stakeholders to deal with the challenges of delivering consistent, accurate and current information to asthma educators. Even though the multidisciplinary collaboration may be present in some areas of asthma management, further research investigating the dynamics and the team relationship in asthma education is needed.

A significant issue in asthma education is the acceptance of educators by the institutions or the community where they are employed. Clearly, the views of other stakeholders on this issue would be important in determining how to implement the Course to better integrate asthma education into the health care system or gain better acceptance with third party users such as physicians, patients, health boards or governments. As future *AsthmaTrec*® programs evolve, the challenge will be to gain complete acceptance within the multidisciplinary groups in which the physician is a principal team member. The quality of the program can only be maintained by examining the realities of actual practices through a continued evaluation process. This process will strengthen and maintain the *AsthmaTrec*® program and asthma education by educators.

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APPENDIX A
Workshop Agenda

WORKSHOP AGENDA

DAY 1

0800 - 1730 hours

- Review of Asthma Pathophysiology
- Environmental Factors
- Asthma History
- Assessment of Pulmonary Function
- Asthma Severity & Control
- Therapy
- Asthma Patient Self-Management

DAY 2

0830 - 1630 hours

- Asthma Patient Self-Management (cont'd)
- Asthma Control & Management
- Communication Skills
- Theories
- Learning Styles of Children and Adults
- Characteristics of Children and Adult Learners
- The Direct Instruction Model
- The Direct Instruction Teaching Methods
- Assessing Factors that Influence Behavior Change in Asthma Patients
- Facilitating Patient Goal Setting
- Health Education Principles Applied to Asthma Education
- How to Teach Asthma in Any Setting

DAY 3

0900 - 1600 hours

- Asthma Education - Goals, Objectives & Components
- A Team Approach to Asthma Management
- Asthma Educator's Local Community Resources
- Conducting an Effective Follow-up Visit
- Circumstances Warranting Referral to a Specialist
- Patient Adherence / Compliance
- Issues Related to Long-Term Self-Management
- The Ideal Asthma Education Process
- Final Homework Assignment
- Participant Evaluation
 - written exam (30 multiple choice questions)
 - practical exam (4 practical skills)



APPENDIX B

Learning Objectives

AsthmaTrec Learning Objectives

AsthmaTrec Learning Objective	Learning Objective
	Module One
	Cell 1-Review of Asthma Pathophysiology
1.	Explain: a) the condition asthma; b) the epidemiology of asthma; and c) factors that determine the natural history of asthma in an individual.
2.	Explain the common symptoms of asthma.
3.	Explain the pathophysiology of asthma.
4.	Distinguish between inflammatory and symptom triggers using examples.
5.	Describe the signs and symptoms of asthma
	Cell 2-Environmental Factors and Associated Illnesses
6.	Explain: a) the Canadian Consensus Guidelines recommendations about allergy testing; b) skin-testing used in allergy assessment.
7.	Explain environmental factors that affect asthma control: a) respiratory pollutants and the related Canadian Consensus Guidelines Recommendations; b) aeroallergens and the related Canadian Consensus Guidelines recommendations; c) factors that may cause occupational asthma and the related Canadian Consensus Guidelines recommendations.

AsthmaTrec Learning Objective	Learning Objective
8.	Explain the role of viral infections in asthma.
	Cell 3-Patient Asthma History
9.	Demonstrate how to take an accurate and effective patient history.
10.	Explain three variable airflow obstruction tests which may be used to help confirm an asthma diagnosis.
11.	Explain the Canadian Consensus Guidelines recommendations about asthma diagnosis.
12.	Explain: a) the importance of the peak flow measurement to provide an objective measure of peak expiratory flow (PEF); b) when to use a Peak Flow Meter; c) how to interpret peak flow measurements based on the system of three color coded PEF zones.
13.	Demonstrate how to correctly use a Peak Flow Meter.
14.	Explain the role of spirometry assessment (FEV ₁ , FVC, FEV ₁ /FVC) including indications, interpretation and quality control.
	Cell 5-Asthma Severity and Control
15.	Explain the three factors which guide in the classification of asthma severity.
16.	Demonstrate how to assess the severity of a patient's asthma (i.e. mild, moderate or severe)
17.	Explain the best results possible for asthma control as defined by the Canadian Consensus Guidelines.
18.	Explain the criteria that determine asthma control as defined by the Canadian Consensus Guidelines.
19.	Explain loss of control of asthma.

AsthmaTrec Learning Objective	Learning Objective
20.	Explain the asthma continuum concept
	Cell 6-Therapy
21.	Explain the importance of environmental therapy to long-term asthma management.
22.	Explain: a) Immunotherapy b) it's role in asthma control; c) the CCG recommendations for immunotherapy
23.	Explain the importance of pharmacotherapy in asthma control.
24.	Explain: a) the functions of preventers/controllers medications; b) examples of preventers/controllers medications.
25.	Identify: a) generic and brand names of inhaled corticosteroids available in Canada; b) the side effects of inhaled corticosteroids; c) the Canadian Consensus Guidelines recommendations for therapy with inhaled corticosteroids.
26.	Identify: a) generic and brand names for oral corticosteroids commonly used in Canada; b) the side effects of oral corticosteroids.
27.	Identify: a) generic and brand names of inhaled non-steroidal/anti allergic agents available in Canada; b) the side effects of inhaled non-steroidal/anti-allergic agents.

Asthma <i>Trec</i> Learning Objective	Learning Objective
28.	Identify: a) generic and brand name of Lukotriene Receptor Antagonists (LTRA's) available in Canada b) side effects of LTRA's
29.	Explain: a) the functions of relievers/bronchodilators medications; b) examples of relievers/bronchodilators medications.
30.	Identify: a) generic and brand names of inhaled β 2-agonists; b) the side effects of inhaled β 2-agonists c) The Canadian Consensus Guidelines recommendations for therapy with short-acting β 2-agonists; d) the Canadian Consensus Guidelines recommendations for therapy with long-acting β 2-agonists.
31.	Identify: a) generic and brand names of inhaled anticholinergics b) the side effects of inhaled anticholinergics c) The Canadian Consensus Guidelines recommendations for therapy with inhaled anticholinergics
32.	Identify: a) generic and brand names of oral theophylline; b) the side effects of theophylline; c) The Canadian Consensus Guidelines recommendations for therapy with theophylline.
33.	Demonstrate how to correctly use and maintain a metered-dose inhaler.
34.	Demonstrate how to correctly use a spacer device: a) with a mouth piece; b) with a mask.
35.	Give examples of when a spacer device is used.

AsthmaTrec Learning Objective	Learning Objective
36.	Explain how to maintain a spacer device in proper working order.
37.	Demonstrate how to properly use and maintain a Diskhaler®.
38.	Demonstrate how to properly use and maintain a Turbuhaler®.
39.	Demonstrate how to properly use and maintain a Diskus®
40.	Demonstrate how to properly use and maintain a wet nebulizer device.
41.	Explain when a wet nebulizer device is used.
42.	Explain the Canadian Consensus Guidelines recommendations about inhaled delivery devices.
43.	Explain which inhaled delivery devices are better suited to asthma patients of different ages and varying needs.
44.	Explain which inhaled delivery devices are used with specific medications to control asthma.
	Cell 7- Asthma Patient Self-Management
45.	Explain: a) goals of patient monitoring b) Canadian Consensus Guideline recommendations for patient monitoring
46.	Explain the role of the patient diary form in monitoring asthma control.
47.	Demonstrate how to properly complete a diary form.
48.	Explain how patient monitoring determines whether control is adequate and whether medications need adjusting.

AsthmaTrec Learning Objective	Learning Objective
49.	Explain the action plan in terms of: a) the severity of asthma; b) its importance in asthma management; c) its components based on the PEF color-coded zone system.
	Cell 8-Asthma Control and Management
50.	Explain the goals of asthma management and how they relate to asthma control.
51.	Outline the aspects of asthma management as defined by the Canadian Consensus Guidelines.
52.	Explain asthma management in terms of a dynamic therapeutic/ action plan which adjusts based on the asthma continuum.
	Module Two
	Cells 1 and 2-Communication Skills, Learning Styles of Children and Adults; Patients Experiencing Difficulty and Different Teaching Methods
53.	Describe five core communication skills that improve health professional and patient interactions and communication.
54.	Distinguish between: a) the learning styles of children and adults. B) the five Direct Instruction teaching methods used with patients of various age levels.
55.	Explain the use of the Direct Instruction model in delivering asthma education.
56.	Demonstrate five Direct Instruction teaching methods that may be used with asthma patients of various age levels.
57.	Demonstrate how to educate patients experiencing difficulty with asthma self-management

AsthmaTrec Learning Objective	Learning Objective
	Cell 3-The Behavior Change Process
58.	<p>Explain asthma education in terms of:</p> <ul style="list-style-type: none"> a) the four goals; b) the objectives; c) the Canadian Consensus Guidelines recommendations for patient education in asthma management.
59.	<p>Explain the practical implications for asthma education emanating from the following three theories:</p> <ul style="list-style-type: none"> a) Social Cognitive Theory; b) Self-Efficacy Theory; c) Social Support Theory.
60.	<p>Explain the practical implications emanating from the PRECEDE Model in terms of:</p> <ul style="list-style-type: none"> a) three categories of factors (predisposing, enabling & reinforcing) that cause/ influence behaviors; b) educational interventions to address these factors.
61.	<p>Demonstrate how to assess those factors (predisposing, enabling & reinforcing) that cause/ influence the behaviors of an asthma patient.</p>
62.	<p>Describe the application of the eleven principles of health education that are applicable to asthma education.</p>
63.	<p>Facilitate patient goal setting for behavior change in asthma self-management</p>

AsthmaTrec Learning Objective	Learning Objective
	Module 3- Long-Term Asthma Self-Management
	Cell 1-Initiation and Maintenance of Health Team Work
64.	<p>Explain asthma management in terms of:</p> <ul style="list-style-type: none"> a) a team approach; b) the goal of collaboration between health professionals and patients; c) the role of health professionals; d) the role of patients.
65.	Design an educator's local community asthma resources list.
	Cell 2-Follow Up
66.	<p>Explain:</p> <ul style="list-style-type: none"> a) what is meant by follow up; b) the goal of follow-up and its importance to asthma management; c) factors to consider during follow up.
67.	Demonstrate how to conduct an effective follow-up visit.
68.	Identify the circumstances that warrant a referral to a specialist for assessment.
	Cell 3-Issues of Patient Compliance To Enhance Long-Term Self-Management
69.	<p>Explain:</p> <ul style="list-style-type: none"> a) patient adherence/ compliance; b) the Canadian Consensus Guidelines recommendations for enhancing patient adherence/ compliance.

Asthma Trec Learning Objective	Learning Objective
70.	<p>Explain how the following issues relate to long term self-management:</p> <ul style="list-style-type: none"> a) patient monitoring skills; b) patient skills in performing peak flow measurements; c) patient skill in problem solving (i.e. adjust treatment based on asthma severity and action plan); d) patient skill in goal setting; e) health professional communication skills f) health professional skill in assessing factors that cause/ influence behaviors; g) health professional skills in applying health education principles in educating the patient; h) health professional skill in using the Direct Instruction Model and the five Direct Instruction teaching methods with patients of various ages and those with special needs.
	Cell 4-Asthma Education Plan for The Patient
71.	Design an asthma education plan with a variety of asthma patients and their families.

APPENDIX C
Questionnaire

Evaluation of the Asthma Training and Educator Course, “AsthmaTrec[®]”: Participants’ Perspective

Purpose :

The purpose of this survey questionnaire is to examine the impact of AsthmaTrec[®] upon successful graduates of the program. This survey will examine your perceptions of the course content, program value, strengths and limitations from the course, and identify what opportunities and experiences you have had in facilitating asthma education programs. The survey will also identify your views as to continuing education opportunities or needs for further asthma education.

Questionnaire:

The questionnaire is divided into four sections:

- SECTION I General Information;
- SECTION II AsthmaTrec[®] Workshop;
- SECTION III Continuing Education; AND
- SECTION IV Personal Information.

Please check the box beside the response which best reflects your situation. Thank you for your participation in completing this questionnaire. Your comments and feedback on how AsthmaTrec[®] have made an impact on your practice will be valuable in assessing and maintaining the quality of the course.

(This survey should take approximately 20-30 minutes of your time to complete. Please return your completed survey in the enclosed self-addressed, stamped envelope, or email to karend33@home.com by no later than July 25, 2001).

Section I: General Information

This section deals with general background information for *AsthmaTrec*®. Please answer all questions.

1. Before taking *AsthmaTrec*®, how long had you worked with patients and families in asthma education?

- ☐ Not at all
- ☐ < 1 year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6-10 years
- ☐ > 10 years

Comments:

2. Before taking *AsthmaTrec*®, on average how many hours per work week were related to asthma education?

- ☐ Not at all
- ☐ < 5 hours
- ☐ 6-10 hours
- ☐ 11-20 hours
- ☐ > 20 hours

Comments:

3. In what month and year did you complete *AsthmaTrec*®?
_____ (month) _____ (year)

4. In which province did you attend *AsthmaTrec*®?

- ☐ British Columbia
- ☐ Alberta
- ☐ Saskatchewan
- ☐ Manitoba
- ☐ Ontario
- ☐ Quebec
- ☐ Newfoundland & Labrador
- ☐ New Brunswick
- ☐ Nova Scotia
- ☐ Prince Edward Island

5. Are you a nationally Certified Asthma Educator (CAE)?

- ☐ Yes
- ☐ No

If YES, please answer question 6, 7 and 8.

If NO, please proceed to question 9.

6. Indicate time of certification.

- ☐ March 1999
- ☐ November 1999
- ☐ November 2000

7. What was the time frame between completing AsthmaTrec[®] and writing the national asthma certification examination?

- ☐ 1-3 months
- ☐ 4-6 months
- ☐ 7-9 months
- ☐ 10-12 months
- ☐ longer than 12 months

Comments:

8. In your opinion, choose the statement that best reflects the amount of time between completing AsthmaTrec[®] and writing the national asthma certification examination.

- ☐ Not enough time between the program and the examination
- ☐ Sufficient time between the program and the examination
- ☐ Too long between the program and the examination

Comments:

Please proceed to question 11.

9. How soon are you considering writing the national asthma certification examination?

- ☐ Not at all
- ☐ Within the next year
- ☐ Within the next two years
- ☐ More than two years from now

10. What were the reasons you chose NOT to write the national asthma certification examination? (Check as many reasons as apply to your situation).

- ☐ Unaware of the certification process
- ☐ Insufficient interest
- ☐ Cost of certification
- ☐ Access to current study materials
- ☐ Not enough time to study
- ☐ Certification is no longer relevant to your current work
- ☐ Writing centre location
- ☐ CAE designation unnecessary
- ☐ Exam phobia
- ☐ Lack of support (specify):
- ☐ Other reasons (specify):

11. Indicate your reason(s) for attending AsthmaTrec[®] (check as many as apply):

- ☐ Employment requirement
- ☐ Personal interest
- ☐ Relevant to employment
- ☐ Career advancement
- ☐ Continuing education credits
- ☐ Workplace support
- ☐ Other (specify):

12. Why did you choose AsthmaTrec[®] over other asthma educator courses (check as many as apply):

- ☐ Cost
- ☐ Accessibility
- ☐ Length of course
- ☐ Availability
- ☐ Course is accredited
- ☐ Location
- ☐ Other (specify):

13. To what extent do you agree or disagree with the following statement: The registration fee (\$500) for AsthmaTrec[®] was appropriate?

- ☐ Strongly agree
- ☐ Somewhat agree
- ☐ Neither agree or disagree
- ☐ Somewhat disagree
- ☐ Strongly disagree

Comments:

14. Since the completion of AsthmaTrec[®], on average how many hours per work week is related to asthma education?

- ☐ Not at all
- ☐ < 5 hours
- ☐ 6-10 hours
- ☐ 11-20 hours
- ☐ > 20 hours

Comments:

15. In your opinion, do you believe that having completed an asthma educator course makes a difference in your assigned responsibilities?

- ☐ Yes
- ☐ No

16. To what extent is the asthma educator course a requirement of your employment?

- ☐ Mandatory requirement
- ☐ Priority in employment
- ☐ Preferred in employment
- ☐ Not required
- ☐ Other (specify):

17. Since taking AsthmaTrec[®], indicate if there was any recognition change for you at work (check as many as apply):

a. Recognition from Employer:

- ☐ Increase in salary
- ☐ Different job responsibilities
- ☐ Promotion
- ☐ Acknowledgement as an asthma resource person
- ☐ Not applicable
- ☐ None
- ☐ Other (specify):

b. Recognition from Other Health Care Team Members:

- ☐ Acknowledgement of you as an asthma resource person
- ☐ Seek your opinion at work on asthma issues
- ☐ Not applicable
- ☐ None
- ☐ Other (specify):

c. Recognition from General Public:

- ☐ Awareness of you as an asthma educator in community
- ☐ Utilization of you as an asthma educator in community
- ☐ Not applicable
- ☐ None
- ☐ Other (specify)

d. Recognition from Provincial Health Districts/Authorities/Regions

- ☐ Awareness of you as an asthma educator in community
- ☐ Utilization of you as an asthma educator in community
- ☐ Not applicable
- ☐ None
- ☐ Other (specify)

Overall Comments on Recognition:

Please proceed to SECTION II

Section II AsthmaTrec® Workshop

Questions in this section relate to how you were able to make use of the knowledge, skills and resources from the course in your current practice and how the course meets your needs as an asthma educator. Please answer all questions.

18. Reflecting on your asthma education needs, how essential are the following AsthmaTrec® *CONTENT AREAS*? Use the following scale to circle the number that best describes the importance to you:

Essential = 5
Very important = 4
Moderately important = 3
Not very important = 2
Not important = 1

	Not important					Essential	Comments
Environmental Walkabout for the Home	1	2	3	4	5		
Pre-workshop Pre-test	1	2	3	4	5		
Asthma pathophysiology	1	2	3	4	5		
Triggers	1	2	3	4	5		
Patient asthma history	1	2	3	4	5		
Lung function	1	2	3	4	5		
Asthma management - environmental measures	1	2	3	4	5		
Asthma management - pharmacotherapy	1	2	3	4	5		
Proper use of delivery devices	1	2	3	4	5		
Assessing asthma severity and control	1	2	3	4	5		
Asthma patient self-management - diary form	1	2	3	4	5		
Asthma patient self-management – action plan	1	2	3	4	5		
Communication skills	1	2	3	4	5		
Theories (social cognitive, self-efficacy, and social support)	1	2	3	4	5		
Learning styles	1	2	3	4	5		
Learning characteristics of adults and children	1	2	3	4	5		
Direct Instruction Model	1	2	3	4	5		
Predisposing, enabling and reinforcing factors	1	2	3	4	5		
Patient goal setting	1	2	3	4	5		
Health education principles	1	2	3	4	5		
Team approach to asthma management	1	2	3	4	5		
Asthma educator's local community resources	1	2	3	4	5		
Follow-up visit	1	2	3	4	5		
Circumstances warranting a referral to a specialist	1	2	3	4	5		
Issues related to patient compliance (algorithm)	1	2	3	4	5		
Ideal asthma education process (final assignment)	1	2	3	4	5		

a. What other topics could be added?

b. What topic(s) could be modified? What suggestions do you have for modifications?

c. What topic(s) could be eliminated?

19. Overall, what would you estimate is the percentage of the *COURSE CONTENT* from AsthmaTrec® you have used in your practice?

- ☐ <10%
- ☐ 10-25%
- ☐ 26-50%
- ☐ 51-75%
- ☐ >75%
- ☐ None at all

Comments:

20. How often do you use each of the following *SKILLS* from AsthmaTrec® in your practice? Use the following scale by circling the number that best describes your practice:

Every Occasion = 5
Regularly = 4
Occasionally = 3
Rarely = 2
Never = 1

	Never					Every Occasion				
<i>Teaching the use of:</i>										
Peak Flow Meter	1	2	3	4	5					
Proper Inhaler Technique	1	2	3	4	5					
Assessing Environmental Factors	1	2	3	4	5					
Taking a Patient History	1	2	3	4	5					
Teaching Use of the Patient Diary Form	1	2	3	4	5					
Teaching Use of the Patient Action Plan	1	2	3	4	5					
Using Direct Instruction Model (DIM)	1	2	3	4	5					
Assessing Predisposing, Enabling & Reinforcing Factors	1	2	3	4	5					
Facilitating Patient Goal Setting	1	2	3	4	5					
Applying Health Education Principles	1	2	3	4	5					
Assessing Patient Adherence/Compliance	1	2	3	4	5					

21. Overall, what would you estimate is the percentage of the *SKILLS* from AsthmaTrec[®] have you used in your practice?

- ☐ <10%
- ☐ 10-25%
- ☐ 26-50%
- ☐ 51-75%
- ☐ >75%
- ☐ None at all

Comments:

22. How often do you use each of the following *RESOURCES* from AsthmaTrec[®] in your asthma education practice? Use the following scale by circling the number that best describes your practice:

Every Occasion = 5
Regularly = 4
Occasionally = 3
Rarely = 2
Never = 1

	Never			Every Occasion	
Consensus Report	1	2	3	4	5
Journal Articles	1	2	3	4	5
AsthmaTrec [®] Participant Manual	1	2	3	4	5
Colleague Interaction	1	2	3	4	5
Reference to Homework Assignments	1	2	3	4	5
Provincial Lung Association	1	2	3	4	5
Other (please specify) :					

23. Overall, what would you estimate is the percentage of the *RESOURCES* from AsthmaTrec[®] you have used in your practice?

- ☐ <10%
- ☐ 10-25%
- ☐ 26-50%
- ☐ 51-75%
- ☐ >75%
- ☐ None at all

Comments:

24. To what extent do you agree or disagree with the following statements (Please circle).

Strongly agree = 5
Somewhat agree = 4
Neither agree or disagree = 3
Somewhat disagree = 2
Strongly disagree = 1

	<i>Strongly disagree</i>					<i>Strongly agree</i>				
The <i>COURSE CONTENT</i> learned in AsthmaTrec [®] is practical in meeting my asthma education needs at work.	1	2	3	4	5					
The <i>SKILLS</i> learned in AsthmaTrec [®] are practical in meeting my asthma education needs at work.	1	2	3	4	5					
AsthmaTrec [®] increased my confidence in facilitating asthma education.	1	2	3	4	5					
AsthmaTrec [®] prepared me to meet my clients' asthma education needs.	1	2	3	4	5					
AsthmaTrec [®] has made a difference in the way I deliver asthma education.	1	2	3	4	5					

Comments:

25. Since completing AsthmaTrec[®], what asthma education are you involved with? (Check all that apply)

- ☐ None at all
- ☐ One-to-one counseling
- ☐ Group sessions
- ☐ Programs in asthma education
- ☐ Development of an asthma clinic
- ☐ Other (specify)

26. In the past six months, how many asthma education initiatives have you been able to facilitate?

	Check if facilitating	# of sessions
One-to-one counselling	_____	_____
Group sessions	_____	_____
Programs in asthma education	_____	_____
Development of an asthma clinic	_____	_____
Other (specify)		

27. What barriers to facilitating asthma education have you identified? (Check all that apply):

- ☐ None at all
- ☐ Facility limitations
- ☐ Financial constraints
- ☐ Small client base
- ☐ Time constraints
- ☐ Language barrier
- ☐ Literacy level of available written resources
- ☐ Other (specify)

Please proceed to SECTION III

Section III: Continuing Education

Questions in this section relate to continuing competency in asthma education. Please answer all questions.

28. Since completion of AsthmaTrec[®], what are you doing to update your knowledge in asthma education? (Check all that apply)

- ☐ Consensus Report review
- ☐ Internet
- ☐ Journals
- ☐ Newsletter
- ☐ Attended videoconference(s)
- ☐ Attended national conference(s)
- ☐ Attended international conference(s)
- ☐ Attended medical rounds
- ☐ No updating
- ☐ Other (specify):

Comments:

29. What challenges to updating your asthma education knowledge have you identified?

- ☐ Obtaining time off work
- ☐ Financial constraints
- ☐ Limited access to resource(s)
- ☐ Not a priority
- ☐ Other (specify):

30. Which of the following continuing education resources are most useful to you? (Check all that apply)

- ☐ Videoconference
- ☐ Teleconference
- ☐ Journal articles
- ☐ Books
- ☐ Conferences
- ☐ Meetings
- ☐ Internet
- ☐ Other (specify)

31.a In your opinion, what do you see as your future education needs in order to be an effective asthma educator?

b. Who should meet these needs?

32. In making revisions to AsthmaTrec[®], the revisions committee are considering moving to a four day workshop format. How do you foresee AsthmaTrec[®] be delivered?

- ☐ No change
- ☐ Two 2-day workshops
- ☐ One 4-day workshop
- ☐ One 3.5-day workshop with the written and skill evaluations occurring separate from the workshop
- ☐ Other (specify)

a. How would you prefer the workshop be conducted?

- ☐ On weekends only
- ☐ During the weekdays only
- ☐ Both weekdays and weekend
- ☐ Over several weeks
- ☐ Consecutive days
- ☐ Other (specify)

b. What would your suggestions be on how this workshop and its content could be delivered?

- ☐ No changes from current delivery
- ☐ Larger pre-study component
- ☐ Video presentation
- ☐ Online (distance learning)
- ☐ Teleconferencing
- ☐ Other (specify)

Please proceed to SECTION IV

SECTION IV – Personal Information

Your response to the following would be greatly appreciated.

33. In which province/territory do you currently practice?

- ☐ Nunavut/Northwest Territories/Yukon
- ☐ British Columbia
- ☐ Alberta
- ☐ Saskatchewan
- ☐ Manitoba
- ☐ Ontario
- ☐ Quebec
- ☐ Newfoundland and Labrador
- ☐ New Brunswick
- ☐ Nova Scotia
- ☐ Prince Edward Island
- ☐ Other (Specify)

34. In what area of work are you involved?

i. EMPLOYMENT STATUS

_____	Full Time Permanent	_____	Part Time Permanent
_____	Full Time Temporary	_____	Part Time Temporary

ii. PLACE OF EMPLOYMENT

(Indicate the category by using an “A” for primary employment and “B” for secondary employment). Include as many positions that apply.

_____	Student	_____	Education
_____	Private Practice	_____	Retail
_____	General Hospital	_____	Pediatric Hospital/Facility
_____	Extended Care Hospital	_____	Industry
_____	Home Care	_____	Government Agency
_____	University/College	_____	Public/Private Education System
_____	Consulting Firm/Agency	_____	Other Non-Profit Agency
_____	Community	_____	Professional Health Association
_____	Other (Please Specify)	_____	

iii. INDICATE YOUR PRIMARY AREA OF RESPONSIBILITY

A. _____	Direct Patient Care (Go to “B”)	
_____	Administration	_____ Teaching
_____	Sales	_____ Research
_____	Consulting	_____ Health Educator
_____	Treating	_____ Other (specify) _____

B. If you indicated direct patient care as your primary area of responsibility, complete the following questions with an "A" for primary and "B" for secondary.

Which category best describes your clients/patients? Indicate as many that apply.

_____ Pediatric	_____ Adult
_____ Geriatric	_____ All ages

Which classification best describes the level of your clients/patients?

_____ Inpatient	_____ Outpatient - Community
_____ Outpatient - Hospital	_____ Mixed

iv. I work as a member of a multi-disciplinary team for asthma education.

- ☐ Yes
- ☐ No

If YES, please describe the nature of the team in which you work.

35. What is your current profession?

- ☐ Dietician
- ☐ Nurse
- ☐ Pharmacist
- ☐ Physician
- ☐ Physiotherapist
- ☐ Respiratory Therapist
- ☐ Other (specify)

36. Education (check highest level):

- ☐ B.P.T.
- ☐ B.Sc.P.T
- ☐ B.Sc.N.
- ☐ M.D.
- ☐ M.N.
- ☐ P.Dt.
- ☐ Ph.D.
- ☐ Pharm.D.
- ☐ R.N.
- ☐ R.T.
- ☐ Other (specify):

37. What is your current age?

- ☐ < 24 years of age
- ☐ 25-35
- ☐ 36-46
- ☐ 47-57
- ☐ 58 years and over

38. What is your gender?

- ☐ Female
- ☐ Male

39. Please share any additional suggestions, recommendations or comments about AsthmaTrec®.

Please return your completed survey in the enclosed self-addressed, stamped envelope, or by email to karend33@home.com, by no later than July 25, 2001.

*Thank you for taking the time to complete this survey.
Your contribution to this project is greatly appreciated.*

Appendix D
Covering Letter



June 27, 2001

Dear AsthmaTrec[®] graduate :

**Re: Evaluation of an Asthma Training and Education Course-
AsthmaTrec[®] Participants' Perspective**

The purpose of this attached survey is to examine the impact of AsthmaTrec[®] upon successful graduates of the program. The survey will examine the course content, program value, strengths and limitations of the information from the course, and identify what opportunities and experiences you have had in facilitating asthma education initiatives in your practice. The survey will also identify your views as to continuing education opportunities or needs for further asthma education. Your input is valuable in helping to assess and maintain the quality of the course.

The attached questionnaire is in four sections. **Section I** contains questions on general background information about AsthmaTrec. **Section II** asks you to rate the importance of each of the statements or the statements that best describe your practice. **Section III** relates to evaluating continuing competency in asthma education. **Section IV** asks for information about your self. Please feel free to add additional comments or ideas in any of the sections.

I would be grateful if you would participate in this survey by completing and returning the questionnaire in the enclosed stamped envelope by July 25, 2001. The survey should take no longer than 20-30 minutes of your time. The questionnaire is completely anonymous. The identification numbers on the back of the questionnaire identify the province in which you are replying from and will help to avoid unnecessary reminders but will be destroyed when the questionnaire is received. **DO NOT** write your name on the envelope. After completion of the study, the results will be disseminated to the AsthmaTrec[®] Development Committee and presented to an asthma educators' conference and the data will be published in aggregate form only. The return of the survey implies permission to use the data in the manner described.

This research has been approved by the University of Saskatchewan Advisory Committee on Ethics in Behavioural Sciences Research. Any questions regarding one's rights as a participant should be addressed to the Office of Research Services (306) 966-4053. Dr. Reg Wickett of Adult and Continuing Education, College of Education at the University of Saskatchewan, Saskatoon is the research supervisor for this study.

Thank-you for your participation in this evaluation study. I hope to hear from you soon. If you have any questions regarding this survey, or wish to receive a copy of the results, please do not hesitate to contact Karen Davis at the following address.

[REDACTED]
Karen Davis P.Dt. C.A.E.
Department of Educational Foundations,
University of Saskatchewan, 28 Campus Drive
Saskatoon, Saskatchewan S7N 0W0
e-mail: karend33@home.com or phone: (306) 717-3578

APPENDIX E

Permission to Contact Graduates

May 10, 2001

Karen Davis, PDt, CAE
658 Delaronde Place
Saskatoon, SK S7J 4A1

Dear Karen:

Please be advised you are granted permission to send an *AsthmaTrec*® (Asthma Training and Educator Course), post course evaluation form to all *AsthmaTrec*® graduates. The results of this evaluation form are to be used to evaluate *AsthmaTrec*®. A list of the graduates and their addresses has been forwarded to you.

Should you have any questions please do not hesitate to call me at (306) 343-9511.

Sincerely,

 
Jan Harmer BPT, CAE

On behalf of the *AsthmaTrec*® Management Committee

APPENDIX F

Letters of Correspondence

AsthmaTrec[®] Survey

In the last three weeks a questionnaire was mailed to you seeking your opinions on AsthmaTrec[®]. The survey is examining course content, program values, strengths and limitations and what opportunities or experiences course graduates have had in facilitating asthma education initiatives. The survey also asks for your views as to the need for further asthma education.

If you have already completed and returned the questionnaire, please accept my thanks. If not, could you please complete the questionnaire and return it to me by August 20th. This questionnaire has been sent to a representative number of graduates and it is extremely important that your response be included in the study if the results are to accurately represent the current thinking and practice of asthma educators in Canada.

If you did not receive the questionnaire, or it got misplaced, please write or call or e-mail me and one will be sent to you. Thank-you for your anticipated co-operation.

Karen Davis P.Dt. C.A.E.
Graduate Student
College of Education
Adult and Continuing Education
Dept. of Educational Foundations

University of Saskatchewan
Saskatoon, Saskatchewan
S7N-0W0
e-mail: karend33@home.com phone 306-717-3578



August 24, 2001

Dear AsthmaTrec[®] graduate:

You may recall that earlier this summer a questionnaire was mailed to you seeking your opinions on AsthmaTrec[®]. The study is examining the course content, program value, strengths and limitations, views and need for further asthma education and what opportunities or experiences course graduates have had in facilitating asthma education initiatives in their practice.

I am especially grateful for your input because by including your opinions, experiences and suggestions for this study, it accurately represents the current thinking and practice of asthma educators in Canada. Just over half of those who received the questionnaire have already returned it. It is extremely important that your response also be included in the study.

If you have already completed and returned the questionnaire, please accept my sincere thanks. If not, please do so to-day and return the completed questionnaire to me by September 10, 2001.

~~If by some chance you did not receive the questionnaire, or it got misplaced, please E-mail me at karend33@home.com or call (306-717-3578) right away, and I will get another one in the mail to you.~~

Best Regards:

A black rectangular box redacting the signature of Karen Davis.

Karen Davis, P.Dt, C.A.E.
Graduate Student
Department of Educational Foundations
College of Education
28 Campus Drive
University of Saskatchewan
Saskatoon, Saskatchewan
S7N 0X1



September 29, 2001

Dear AsthmaTrec[®] Graduate:

During the past three months I have sent you mailings about an important study I am conducting. This study is seeking your opinions on AsthmaTrec[®]. The study is examining the course content, program value, strengths and limitations, views and need for further asthma education and what opportunities and experiences course graduates have had in facilitating asthma education initiatives in their practice.

Your input and responses to the questionnaire are important and valuable to the reliability of the study. Including your opinions, experiences, and suggestions will accurately represent the current thinking of asthma educators in Canada.

The University of Saskatchewan Advisory Committee on Ethics in Behavioral Sciences Research has approved this research. Any questions regarding one's right as a participant should be addressed to the Office of Research Services (306) 966-4053. Dr. Reg Wickett of Adult and Continuing Education, College of Education at the University of Saskatchewan, Saskatoon, Saskatchewan is the research supervisor for this study. I want to assure you that the responses to the questionnaire are completely anonymous. A questionnaire identification number is printed on the back of the questionnaire. When the questionnaire is returned, the name is destroyed so that individual names cannot be connected to the results in any way.

Thank-you in advance in your participation for this evaluation study. I have enclosed a copy of the questionnaire for you. If you have already completed and returned the questionnaire, please accept my sincere thanks. If not, please send your responses in by **October 18, 2001**. If you have any questions regarding this study, or wish to receive a copy of the results, please do not hesitate to contact me at the following address. I look forward to receiving your reply.

Best Regards:

[Redacted signature]

Karen Davis P.Dt. C.A.E.
Department of Educational Foundations
University of Saskatchewan, 28 Campus Drive
Saskatoon, Saskatchewan S7N 0W0
E-mail: karend33@home.com or phone: (306) 717-3578

APPENDIX G

Ethics Approval



**UNIVERSITY ADVISORY COMMITTEE
ON ETHICS IN BEHAVIOURAL SCIENCE RESEARCH**

NAME: R. Wickett (K. Davis)
Department of Educational Foundations


BSC#: 2001-119

DATE: June 21, 2001

The University Advisory Committee on Ethics in Behavioural Science Research has reviewed the revisions to the Application for Ethics Approval for your study "Evaluation of an Asthma Training and Educational Course: Asthma Trec: Participants' Perspective" (01-119).

1. Your study has been APPROVED.
2. Any significant changes to your proposed study should be reported to the Chair for Committee consideration in advance of its implementation.
3. The term of this approval is for 5 years.
4. In order to maintain ethics approval, a status report must be submitted to the Chair for Committee consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: <http://www.usask.ca/research/ethics.shtml>.

I wish you a successful and informative study.


University Advisory Committee
on Ethics in Behavioural Science Research

VT/bk